



HUD 2015 ENTERPRISE ROADMAP

VERSION 6.0

Department of Housing and Urban Development
Office of the Chief Information Officer

May 2015



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REVISION HISTORY

Date	Version	Summary
5/29/2012	.01	Initial Draft of FY2012 HUD Enterprise Roadmap
6/18/2012	.02	Revised draft to incorporate additional components of the Roadmap, as well as feedback from the initial internal EA Program review
6/28/2012	.03	Revised draft to incorporate additional comments and section updates from the internal team members.
7/19/2012	.04	Revised draft to incorporate additional comments and section updates from the HUD team and internal team members.
7/23/2012	1.0	Final Draft submitted to HUD Chief Architect
7/24/2012	1.1	Final Draft with comments from the HUD Chief Architect
7/27/2012	2.1	Revised Final Draft with additional comments from the HUD Chief Architect
8/20/12	2.2	Revised Final Draft with comments from OCIO Senior Leadership
3/28/2013	3.0	Updated FY2013 HUD Enterprise Roadmap
4/10/2013	3.1	Updates to FY2013 HUD Enterprise Roadmap and Appendices
5/10/2013	3.2	Updates to FY2013 HUD Enterprise Roadmap and Appendices
1/17/2014	4.01	Initial Update of FY2014 HUD Enterprise Roadmap
1/27/2014	4.02	Updates to incorporate additional components of the Roadmap
2/14/2014	5.0	Final Draft incorporating feedback from EA Stakeholder program review
3/28/2014	5.0	Final Approval of FY2014 HUD Enterprise Roadmap by HUD Deputy Secretary
8/12/2014	5.1	The FY2014 Enterprise Roadmap is updated to incorporate the revised HUD Strategic Plan FY2014 - 2018, changes to IT Major Projects with FY2014 DME Funding and associated Integrated Sequencing Plan (ISP), and including an initial list of IT investments with projects requesting FY2015 DME Funding. Reference to the list of IT projects with FY2013 DME funding has been removed.
5/21/2015	5.2	The FY15 Enterprise Roadmap draft version was reviewed by the EA team and inputs/feedback incorporated into the document. The finalized draft will be presented for review and approval by the Customer Care Sub-committee and by the Deputy Secretary.
5/29/2015	6.0	Final Approval of the FY2015 HUD Enterprise Roadmap by the HUD Deputy Secretary



REFERENCES

Document Name
HUD Enterprise Roadmap FY2014 (March 2014)
HUD Strategic Plan FY2014-2018
HUD Information Resources Management (IRM) Plan FY2014-2018
HUD Policy for IT Governance v1.0 (July 2011)
HUD Information Technology Investment Management (ITIM) Framework - v2.0 (June 2011)
HUD Project Planning and Management v2 (May 2013)
HUD Target Architecture v8 Draft (February 2014)
HUD FY2013 IT Expenditure Plan - Draft (August 2013)
HUD FY2013 Annual Performance Report and FY2015 Annual Performance Plan - Draft
OMB FEA Consolidated Reference Model v3 (July 2013)
OMB Common Approach to FEA (May 2012)
OMB Federal Enterprise Architecture Framework (FEAF) v2 (January 2013)
OMB Federal Shared Services Strategy (May 2012)
OMB Memo M-11-29 - OCIO Authorities (August 2011)
OMB Memo M-13-09 - FY2013 PortfolioStat Guidance (March 2013)
OMB Memo M-13-13 - Open Data Policy (May 2013)
Federal CIO 25-Point IT Reform Action Plan (December 2010)
Federal CIO Cloud Computing Strategy (February 2011)
Federal CIO Digital Government Strategy Building the 21 st Century Platform (May 2012)
HUD Enterprise Architecture Policy, Version 1.0 (November 2013)
Concept of Operations (CONOPS) for the Office of Customer Relationship and Performance Management, Version 1.0 (March 2013)



EXECUTIVE SUMMARY

The U.S. Department of Housing and Urban Development's (HUD) priorities have evolved significantly in the wake of the recent housing market deterioration, the national economic crisis, and the overall requirements for increasing transparency and improved customer service. In response, HUD has chartered a course to transform the business and IT landscape through the modernization of its technology, processes, policies, and workforce. Notably, HUD is shifting its technology strategy from developing standalone capabilities *within* each mission area to meeting business requirements *across* HUD's mission areas. As a result, HUD is already improving IT support for programs that help keep responsible homeowners in their homes, reduce the number of homeless veterans on our streets, and attract private investments and speed economic growth by reducing the combined cost of housing in targeted regions **[BXXA]**.

[AXXA] The Roadmap is a 5-year plan for modernizing HUD's IT capabilities to achieve HUD's strategic and agency priority goals. It defines HUD's current and target architecture states for performance, business, data, applications, infrastructure, and security, and prescribes a plan for transitioning toward the desired future environment. As this is a management tool, the Roadmap is integrated with HUD's annual IT budget formulation process, serves as an authoritative reference for ongoing IT portfolio reviews, helps with segment analysis and IT planning, and supports the OMB directive to periodically report progress on government reform. The Roadmap aligns with the HUD Strategic Plan as well as the IT Strategic Plan. The Roadmap was developed under the guidance and facilitation of the HUD EA Practice, in collaboration with key stakeholders across the Department, and is comprised of the following primary sections:

- **HUD's Current Enterprise Architecture (EA)** incorporates proposed business cases and previous modernization blueprints to identify pressing business needs and opportunities. It then leverages current strategic and planning activities, existing documentation, assessments of IT investments, and analysis of current technical infrastructure to identify gaps in HUD's target state.
- **HUD's Target Enterprise Architecture** aims to improve HUD's customer-focus and better prepare the Department to fulfill its mission and the needs of its stakeholders by making it leaner, smarter, more transparent, and more accountable. The target EA consists of segment architectures that align the initiatives to HUD's target state. Significant progress has been made on updating and validating HUD's IT investments, aligning all IT investments to the new segments, and discovering new opportunities for cost savings by identifying systems that are redundant, obsolete, and candidates for decommission.
- **HUD's Transition Strategy** calls for leveraging ongoing strategic initiatives as the foundation for successful and sustainable transformation, and Federal IT reforms such as PortfolioStat, shared services, and cloud computing initiatives are also being factored into HUD's transformation plans. Ongoing business modernization activities are already making HUD more efficient, effective, and agile in performing its mission. With a greater focus on "economies of scale", HUD continues to streamline or altogether avoid technology costs by establishing enterprise Shared Services and integrating or consolidating IT investments and systems.

Moving forward, the Enterprise Roadmap will be used as a management tool to guide HUD's business transformation. HUD's major initiatives are being deployed incrementally to ensure new capabilities are successfully integrated into HUD's business operations. As the EA evolves, the HUD Enterprise Roadmap will be routinely updated in close collaboration between our business and technical staff to reflect the Department's changing needs and priorities. The HUD EA will continue to support the accomplishment of HUD's mission to serve our underserved communities and help citizens in need.



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ADDENDUM – MAY 2015

The updates made to the FY15 HUD Enterprise Roadmap are summarized below:

- Updated the Roadmap to align with the new **FY14 - FY18 HUD Strategic Plan** released in April 2014. The changes are incorporated in Section 3 - “HUD Strategic Direction.”
- Aligned the Roadmap with the updated **HUD FY14 - FY18 Information Resource Management (IRM) Strategic Plan**.
- Added the new **OCIO Assessment, Strategies and Performance (ASaP)** initiatives to Section 5, Target State. The ASaP is strategic capabilities framework developed by the OCIO leadership that identify key IT initiatives being considered for implementation.
- Included updated **HUD IT Inventory of Assets** based on OCIO information on current and ongoing IT investments (projects, systems and services).
- Updated list of IT initiatives that are considered for Development, Maintenance, and Enhancement (**DME**) **FY15 Funding** and a list of **HUD FY16 Exhibit 300 submissions**.
- Replaced the HUDNet with the **HUD Enterprise Architecture Transformation (HEAT)** initiative to reflect the next phase of HUD’s IT infrastructure modernization effort.
- Included updated **FY15 EA Value Measurement Plan and Report** in Appendices 1 and 2.



1 INTRODUCTION

1.1 BACKGROUND

Executive Order 13576 - Delivering an Efficient, Effective and Accountable Government¹, issued on June 13, 2011, requires all Federal agencies to “systematically identify reforms necessary to eliminate wasteful, duplicative, or otherwise inefficient programs; and publicize these reforms so that they may serve as a model across the Federal government.”

To execute this order, the Office of Management and Budget (OMB) has provided guidance to agencies for identifying areas of program overlap and duplication within and across agencies, and for proposing consolidations and reductions to address those inefficiencies. Under its Accountable Government Initiative, OMB has directed Federal agencies to periodically report their progress toward their government reform. One of these directives is the annual submission of the Department’s Enterprise Roadmap. This report serves as HUD’s annual submission for Fiscal Year 2015. HUD’s Enterprise Roadmap report provides a 5-year (FY2015 - 2019) blueprint for modernizing HUD’s IT capabilities from a strategic, business, and technology perspective. The Roadmap is a management tool that describes HUD’s “Current” and “Target” enterprise architecture (EA) state of performance, business, data, applications, infrastructure, and security, and lays out a prescribed plan for transitioning toward the desired target environment.

1.2 PURPOSE AND SCOPE

HUD’s Enterprise Roadmap serves as a planning tool to help ensure IT initiatives are aligned with the mission of the department. The Roadmap reports the planned activities that will transition HUD to its target state according to the strategic goals and objectives of the agency.

The Enterprise Roadmap consists of high-level descriptions of the current environment and existing capability gaps; high-level descriptions of the target environment that should address those gaps; a detailed discussion of the transition strategy to move to the future state; a description of the HUD EA practice approach; and an overview of program performance. The goal of the Enterprise Roadmap is to provide a clear and comprehensive strategic direction for how HUD will achieve its business and technical visions through the Department’s major information technology initiatives.

In addition, the Roadmap incorporates information on HUD’s major IT projects, as reported in HUD’s annual IT Expenditure Plan. These plans report the functional and performance capabilities to be delivered through the Department’s prioritized initiatives.

1.2.1 TARGET AUDIENCE

This document is available to all HUD organizations to communicate and obtain their ongoing support for the successful implementation of the FY2015 HUD

¹ <http://www.whitehouse.gov/the-press-office/2011/06/13/executive-order-delivering-efficient-effective-and-accountable-government>

[efficient-effective-and-accountable-government](http://www.whitehouse.gov/the-press-office/2011/06/13/executive-order-delivering-efficient-effective-and-accountable-government)



Enterprise Roadmap. It is also targeted for use and reference by external organizations and interested parties to share information across Federal agencies, business partners, and the American people to facilitate government transparency and accountability.

- **HUD Executives:** As the primary forces within HUD who are responsible for ensuring that the Department fulfills its mission and progresses toward its vision, executives influence and support the desired end-state set forth in the Roadmap. The objective of this document is to enhance the decision-making process pertaining to maintenance of existing IT resources and acquisition or development of new IT solutions.
- **Office of the Chief Information Officer (OCIO):** As members of the office with primary responsibility for planning and deploying IT solutions, the OCIO staff needs to understand the desired end-state for the Department, the specific services and technologies that will be employed, and how HUD is going to get there.
- **IT Investment Management (ITIM) Staff:** The ITIM staff must understand the EA and be able to apply that understanding in the evaluation of HUD's IT investment portfolio. The FY2015 HUD Enterprise Roadmap serves as guidance during budget formulation and provides decision support regarding investment funding. [CXXG](#) [CXXF](#) [CXXE](#) [CXXC](#)
- **Program/Project Managers:** Program and project managers responsible for IT initiatives must ensure that the initiatives align with the HUD Target EA.
- **Business Managers:** Managers should understand how the EA will support their business needs. They should

closely review the document to understand the services and technologies that will support their initiatives.

- **The Office of Management and Budget (OMB):** As part of the budget submission process, HUD will submit the EA and other EA work products to OMB. OMB will review the EA to determine whether HUD has a cohesive framework for employing IT in support of its business, and whether individual IT initiatives are aligned with that framework. All initiatives must align with the HUD EA in order to receive funding. HUD's EA can also be referenced to identify opportunities for government-wide initiatives that drive cost savings and improve efficiency through sharing and collaboration.
- **Other Peer Agencies:** HUD collaborates with other Federal agencies, such as the Department of Health and Human Services, the Social Security Administration, and the Department of Treasury (including the Bureau of Public Debt and the Internal Revenue Service), in the implementation of its programs. The FY2015 HUD Enterprise Roadmap will help these partnering entities understand HUD's approach to business and supporting technologies.

1.3 DOCUMENT STRUCTURE

HUD's Enterprise Roadmap is a living document. As the IT-driven transformation described herein matures and evolves, the Department will continue to refine the document and increase its level of insight into HUD's enterprise transformation.

The Executive Summary provides a management overview about the objectives and contents of the HUD Enterprise Roadmap, and describes the



key points, outcomes, and benefits from this document.

The rest of the document is broken into 6 major sections. Each section is described below.

Section 1. Introduction - Provides a brief explanation of the background and purpose of this document. It further describes the intended audience and the layout of the document structure.

Section 2. EA Practice - Describes HUD's approach to the EA practice, including a discussion on EA governance, framework, products and services, mission support, and the EA practice performance.

Section 3. HUD Strategic Direction and Performance Management - Briefly highlights HUD's strategic direction, IT strategic direction, and HUD's performance measurement framework to ensure movement toward HUD's strategic outcomes.

Section 4. Current Environment - Summarizes information collected by the HUD EA practice and describes HUD's current environment for business activities, data and information, systems and applications, IT infrastructure, and security components. Although the documentation of the current environment is still a work in progress, the section presents findings identified from ongoing assessments that identify HUD business needs, gaps, and opportunities to improve the way HUD does business.

Section 5. Target State - Summarizes key information that describes HUD's target state based on HUD's defined mission. The target components discussed are as follows: business activities, data and information, IT infrastructure, and security framework. This Target

Architecture is being developed and updated in close collaboration with key stakeholders, program area managers, subject matter experts, and the OCIO staff. [EXXB](#) [EXXA](#)

Section 6. Transitioning to the Target State - Reports the planned activity to transition the Department from the current environment to its desired target state. This section describes the major initiatives underway to toward the desired future environment. It also describes HUD transformation through integrated activities across the OCIO organization, to comply with Federal IT Reforms.



2 EA PRACTICE

2.1 PRACTICE DESCRIPTION

The HUD EA Practice is established under the Office of the Chief Information Officer (OCIO), and is executed under the direction of the Chief Architect. While the development and maintenance of an EA is mandated by OMB, HUD is working to establish EA as a tool for business transformation. HUD has steadily been building and establishing value-added business and technical elements for a comprehensive EA practice. For example HUD has added a Pre-Select process to the overall select process to help filter out redundancy within and among IT projects. HUD’s EA Practice is a business-driven practice continually identifying the current and desired states for HUD’s performance, business, data and information, applications and services,

technology, and security architectures. As mandated through HUD’s EA Policy, the Department will define, maintain, and adhere to the approved enterprise architecture principles, procedures, standards, reference models, and guidelines that support HUD’s mission, goals, and objectives. XXXX

2.1.1 PROGRAM STRUCTURE

HUD’s Enterprise Architecture is integrated into the Department’s major operational and governance activities involved in strategic planning, IT portfolio management, risk and security management, and project planning and management in support of HUD’s mission.

Figure 2-1: HUD EA Practice Functional Chart illustrates the program functions

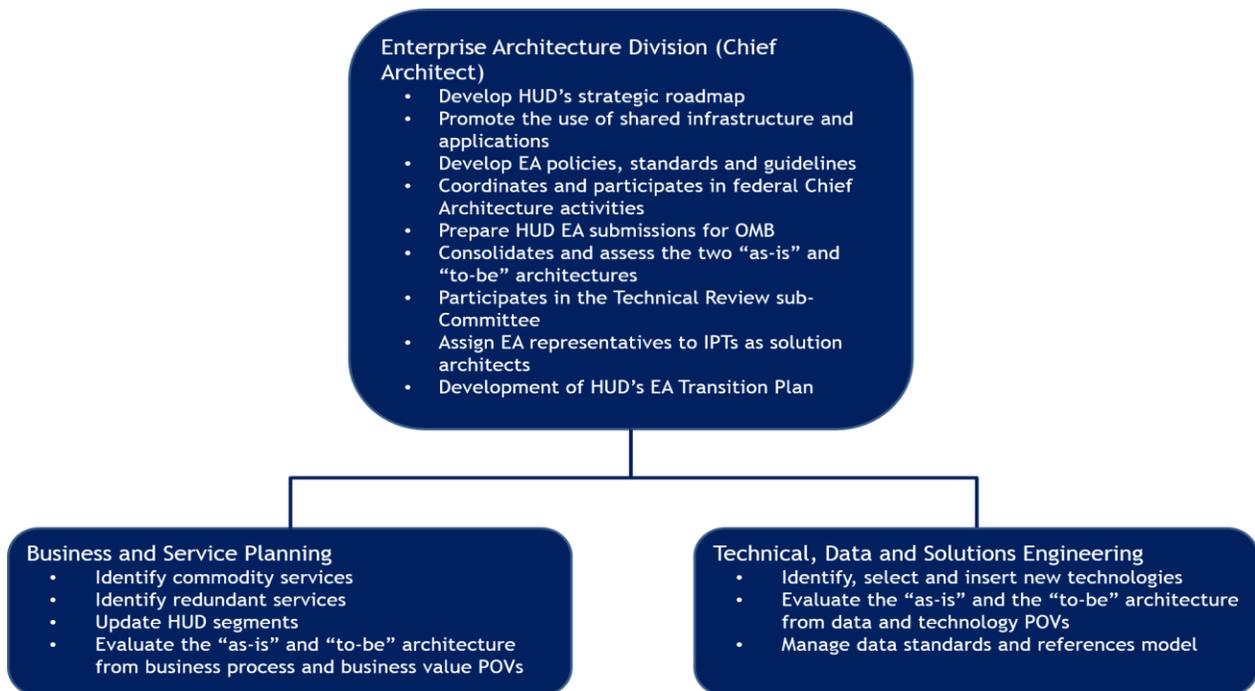


Figure 2-1: HUD EA Practice Functional Chart



performed by the EA Practice under the leadership of HUD’s Chief Architect.

The HUD EA practice also serves as a guide to assist the IT development community in the creation of enterprise and system requirements needed to develop IT solutions. It further provides the end-state vision for the HUD IT Strategic Plan. It participates in the development of multi-year IT portfolio investments, the IT budget, and specific initiative program and project plans, performing a vital role in HUD’s ongoing business transformation.

2.1.2 PROGRAM STAFFING RESOURCES

The Chief Architect is responsible for the planning, budgeting, and overall management of the EA practice and its staff. The HUD EA Practice is led by the Chief Architect, who is supported by a staff of ten full-time employees (FTEs) and a seven-member contractor team. The EA staff is assigned various tasks, pairing the HUD FTEs with the contractor team to ensure cross coverage and continuous exchange of knowledge and skills.

2.2 EA PRACTICE GOALS SUPPORT HUD STRATEGY

The HUD EA Practice collaborates with the business and OCIO staff to continually improve and mature the EA Practice to become more business-driven and results-oriented to support its customers and stakeholders [BXXA]. HUD EA Practice goals support HUD’s strategic goals and are also aligned with the OCIO strategic goals. HUD’s EA goals and objectives are described below and depicted in **Figure 2-2: HUD EA Practice Goals and Objective**

- **Meet Customer and Stakeholder Needs** - EA helps define business needs

and opportunities, recommend best possible solutions, and assist in implementing projects that improve services to citizens, stakeholders, and partners.

- **Enable Better Decision Making** - EA provides reliable, timely, and relevant information that help leadership and staff to plan and decide on appropriate IT investments for analysis, funding, acquisition, and management.
- **Communicate and Collaborate** - EA works closely with key stakeholders, subject matter experts, and technical staffs as part of integrated project teams, collecting and sharing information to successfully execute projects.
- **Ensure Transparency and Accountability** - EA collects and validates information from authoritative sources and shares this information within HUD, across other agencies, and the public through its internal and external Web sites.
- **Adopt Common Approaches and Best Practices** - EA applies standards and proven best practices that create relevant EA artifacts that help develop



Figure 2-2: HUD EA Practice Goals and Objective



and enhance capabilities to meet HUD needs and promote Federal standards.

- **Establish Standards and Repeatable Processes** - EA develops standardized EA forms, processes, and reports that make it easier for managers and staff to use and apply in strategic planning, IT investment funding, and daily operations.
- **Increase Efficiency and Effectiveness** - EA provides and enables tools that promote information sharing, impact analysis, and reuse of IT assets, which include a centralized repository, data modeling tools, and EA segment reports.
- **Share and Leverage Existing Assets** - EA maintains a knowledge repository (EBITS) that enables the sharing of IT asset information (systems, services, projects) that may be leveraged for reuse to save time and money.

2.3 EA GUIDING PRINCIPLES AND GOVERNANCE

2.3.1 GUIDING PRINCIPLES

HUD has adopted a set of architecture principles to ensure that EA supports HUD’s business and technology requirements, from which HUD’s EA Policy was established. Architecture principles are succinct statements of preferred direction or practice. They establish a common vision to ensure that tactical decision-making aligns with the strategic objectives.

HUD’s architecture principles provide context for making decisions and guide the development of programmatic and enterprise solutions. They help in

prioritizing and sequencing transition projects that will move the Department from its current environment toward the target environment. The following ten principles guide the development and implementation of HUD’s EA:

1. Maintain a single, Department-wide EA
2. Design HUD EA from HUD’s mission, strategies, goals, and objectives
3. Require compliance with EA as a prerequisite for IT investment
4. Participate in efforts to define and implement government-wide solutions
5. Promote sharing, reuse, and common solutions
6. Reduce complexity through the use of enterprise standards
7. Manage information and data as enterprise assets
8. Integrate security and privacy into all architectural layers
9. Implement EA through segment architecture
10. Seek to employ existing technologies in creating solutions for stakeholders

2.3.2 GOVERNANCE AND HUD EA PROCESSES

[CXXB] HUD revised and published the *HUD Enterprise Architecture Policy, Version 1.0 November 2013*². The policy specifies roles and responsibilities for the OCIO, CIO, Chief Architect, and program offices. It also positions the EA practice to continue increasing its role in the HUD governance processes for IT investments, configuration management, asset management, and program/project management. Processes, including those

²

<http://portal.hud.gov/hudportal/documents/huddoc?id=32551CIOH.pdf>



that define the HUD EA role in the OCIO governance, have or are being developed via a HUD EA Standard Operating Procedure (SOP) Manual, and are undergoing a review process. These processes include:

- IT Investment Management
- IT Strategic Planning
- Project Management
- IT Operations Management
- Security and Risk

Other processes that will be formalized include establishing repeatable Enterprise Architecture artifact update cycles, and Enterprise Roadmap update cycles and tracking.

2.4 EA FRAMEWORK

The HUD EA framework defines the set of products that constitute a comprehensive EA for HUD. It is consistent with government and industry EA best practices; at its core is the CIO Council's Federal Enterprise Architecture Framework (FEAF v.2) and it is aligned with OMB's Consolidated Reference Model. HUD's EA framework is depicted in **Figure 2-3: HUD EA Framework**, and is described below.

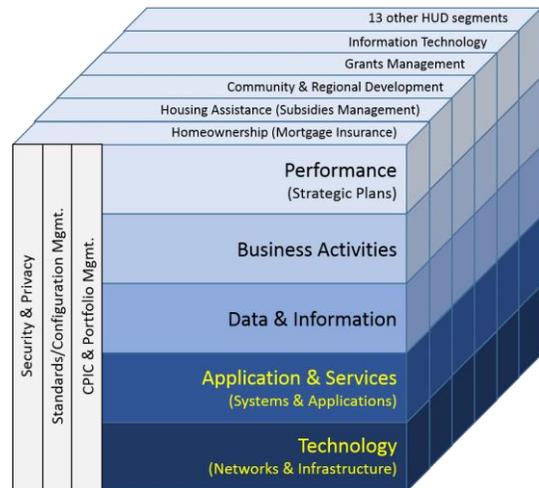


Figure 2-3: HUD EA Framework

- **EA Principles** - HUD's EA principles are brief statements of preferred direction or practice. They help establish a common set of guidelines to govern the development and implementation of EA.
- **Strategic Direction and Drivers** - HUD's Strategic Direction and Architectural Drivers set the foundation upon which the EA is developed. Since HUD's business strategy drives the EA, this section encompasses HUD's mission, vision, goals, and objectives. A high-level view of HUD's Architectural Drivers, both internal and external, and Federal mandates that influence HUD's EA and architectural decision-making process are factored in. AXXA
- **Architectural Layers** - The EA provides the details of HUD's performance, business, data, application, infrastructure, and security layers. Each layer provides a different perspective on HUD's current and target environment.

2.5 EA ARCHITECTURAL LAYERS, PRODUCTS AND SERVICES

As the HUD EA practice continues to mature, the EA products and services will deliver knowledge and information to



business owners and system owners, and fulfill government-wide policy requirements and guidance. **Figure 2-4: HUD EA Major Products**, provides an encompassing list to enable HUD's business transformation. EA processes are defined in the HUD EA Standard Operating Procedure (SOP).

2.6 PROGRAM SUPPORT TOOLS

In addition to the EA Support Contract, the EA budget allocates funds toward evolving and maturing EA Practice support tools, which are comprised of Commercial-Off-the-Shelf (COTS) products and internally-developed applications. The current EA Practice support tools include:

- **Enterprise Business Information Transformation System (EBITS)** - Used to collect, analyze, and report on the Department's Enterprise Architecture. EBITS enables architecture definitions and modeling (diagrams) at all levels within the organization, allowing HUD to see into the various aspects of the enterprise and allowing users to perform various types of analysis looking at both the current (as-is) and target (to-be) states. For example, HUD uses the heat map analysis capability in System Architect to identify current issues in HUD's environment.
- **Meta Data Repository (MDR)** - A searchable central store of HUD database metadata, which provides the ability to discover existing metadata definitions for reuse in new system development. In addition, MDR increases system interoperability and data exchanges by enhancing the understanding of current data assets and common data structures.
- **Enterprise Data Model** -The Common Application Relational Schema (CARS) logical data model is the Enterprise

Data Model for HUD. CARS defines mission-critical HUD data using a methodology that allows new development projects to use the model in establishing foundational data models and databases.

The CARS modeling approach creates a solution data model instead of a high-level logical data model which has been traditionally created for Enterprise Logical data models. The CARS model methodology defines the entities, attributes, and relationships that enable the data model and database to:

- Ensure Data Quality
- Enforce Business Rules
- Enforce HUD data standards

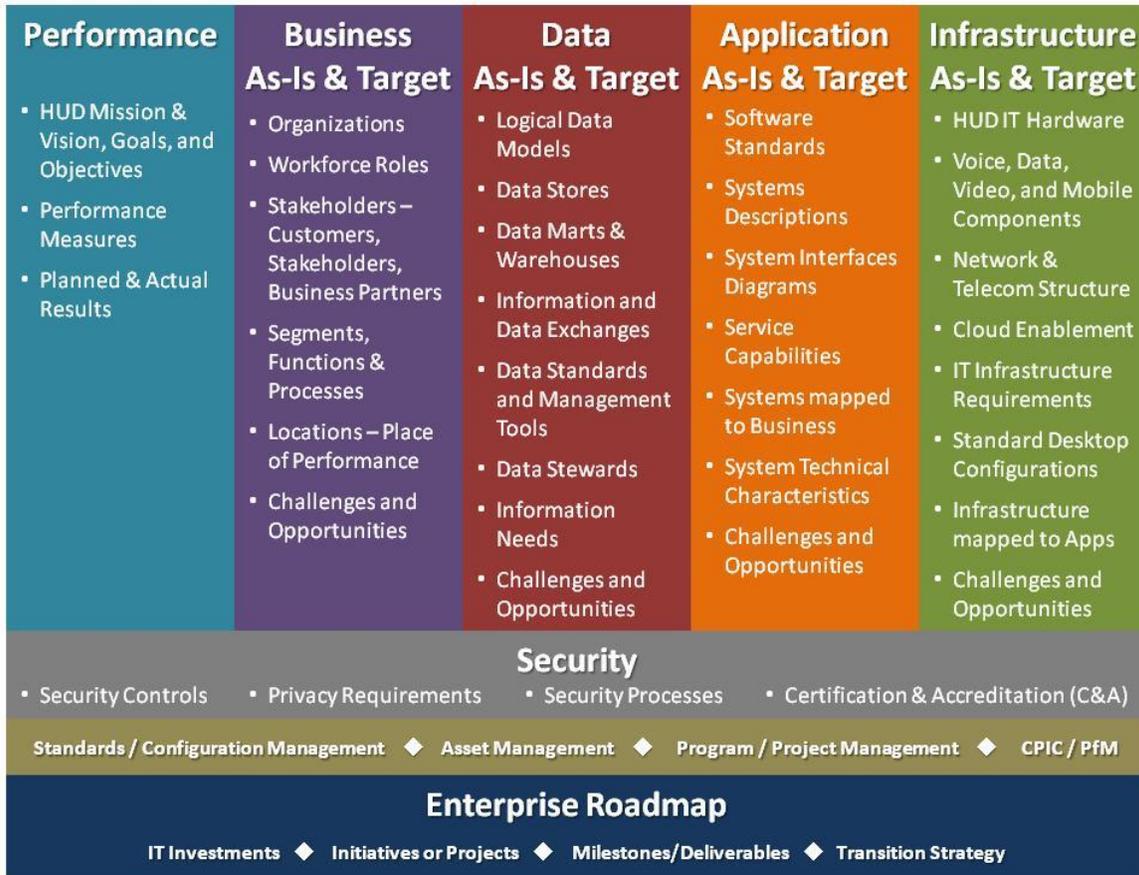


Figure 2-4: HUD EA Major Products

2.7 PROGRAM PERFORMANCE

2.7.1 FY2013 – 2014 HUD EA VALUE MEASUREMENT RESULTS

[BXXA] [BXXB] [BXXC] As of February 2015, HUD had completed the assessment of EA value and performance for FY2014, which marked three consecutive years of output through HUD’s repeatable measurement process. As defined in the HUD EA Value Measurement Plan FY2014, baseline values for the quantitative measures were derived from the previous fiscal year to accurately measure any changes in metrics that would require additional EA focus. EA activities continue to build on the FY2012 notable activities which include:

- Increased Active EA participation on Integrated Project Teams (IPT) within HUD IT Projects
- Significant EA outreach, communications, and marketing within the Department
- HUD’s Metadata Repository, updated with critical information derived from HUD systems
- Segment Architecture development efforts, prioritized on Enterprise Services with significant focus on commodity IT services and a service-based delivery model

2.7.2 HUD EA VALUE MEASUREMENT

[BXXA] [BXXB] In addition to ongoing internal efforts, HUD’s EA Practice has participated in the Federal OMB EA Value



Measurement Working Group, which is helping to define Operational and Mission Performance metrics, and is a major contributor of best practices and lessons learned for use across the government. More recently, HUD has provided substantive comments to the EA Maturity and Value Measurement templates developed by OMB, and is currently integrating this new construct into HUD's process for measuring and assessing EA value within the Department.

Utilizing the finalized OMB EA Value Measurement template dated February 21, 2013, HUD has provided all known measurement methods, targets, and timelines for each respective measurement indicator. Areas of measurement where information was not ascertained prior to submission of the Enterprise Roadmap, or in which a process to capture data has not been instantiated, is notated in the comments section of the template. HUD's assessment using the OMB EA Value Measurement Template can be found in **Appendix 2: FY2014 OMB EA Value Measurement Report: Department of Housing and Urban Development (HUD)**.

2.7.3 EA PRACTICE MATURITY STRATEGIES

[BXXB] [BXXC] HUD's EA continues to evolve and improve as part of HUD's management practice as an integral component into the OCIO's strategic planning, IT investment management, project management, risk assessment, and IT operational support. It is crucial that key stakeholders across HUD actively participate in the development and implementation of the HUD EA and its application in planning, decision-making, and information sharing.

During the past year, the EA organization has implemented a Pre-Select process to inform the annual budget formulation process. This process involves focused planning of new business capabilities to address existing gaps in the architecture. The Pre-Select process provides an opportunity for the EA organization to partner closely with the business stakeholders to understand their needs and identify the best solution to meet the strategic goals and objectives of the department. In addition, this process reduces redundancy across the portfolio and provides the necessary time to analyze alternative solutions, including existing IT assets and shared services.

Other areas the EA team is focused on include:

- Avoiding unnecessary costs through collaboration to use existing HUD capabilities, eliminate redundancies, and leverage shared services;
- Strengthening the quality of IT investments by establishing a more integrated budget formulation process based on Departmental priorities as an integral role with Capital Planning; and
- Improving the quality, validity, and accuracy of data and information regarding program performance, project planning and management, and risk assessments.
- The self-evaluation of the HUD EA Practice maturity was last conducted in May 2015 can be found in **Appendix 1: HUD EA Maturity Measurement Assessment**.



3 HUD STRATEGIC DIRECTION

The Enterprise Roadmap is derived from multiple sources. It is a result of the EA current and target architectures, Federal and OMB priorities, and most importantly the strategic mission, vision, and direction that is set by the Office of the Secretary, and the information technology strategic direction from the Office of the Chief Information Officer.

The FY2015 Enterprise Roadmap leverages the FY2014-FY2018 Strategic Plan, the FY 2013 Annual Performance Report - FY2015 Annual Performance Plan, and the FY2014 - FY2018 Information Resource Management (IRM) Plan. Together, these

resources describe the strategic vision of the agency and report progress towards achieving expected levels of performance.

HUD's Mission
 "Create strong, sustainable, inclusive communities and quality, affordable homes for all."
HUD's Vision
 "To improve lives and strengthen communities to deliver on America's dreams."

3.1 HUD'S STRATEGIC VISION

AXXA The *FY2014-FY2018 Strategic Plan* establishes four overarching strategic goals and eight management objectives which help frame HUD's discussion of its performance targets and associated priorities. In addition, HUD's strategic framework contains eight management objectives that are intended to

improve departmental operations. Introduced in **Figure 3-1: HUD's Strategic Goals**.

On an annual basis, HUD reports progress towards achieving its targets through the

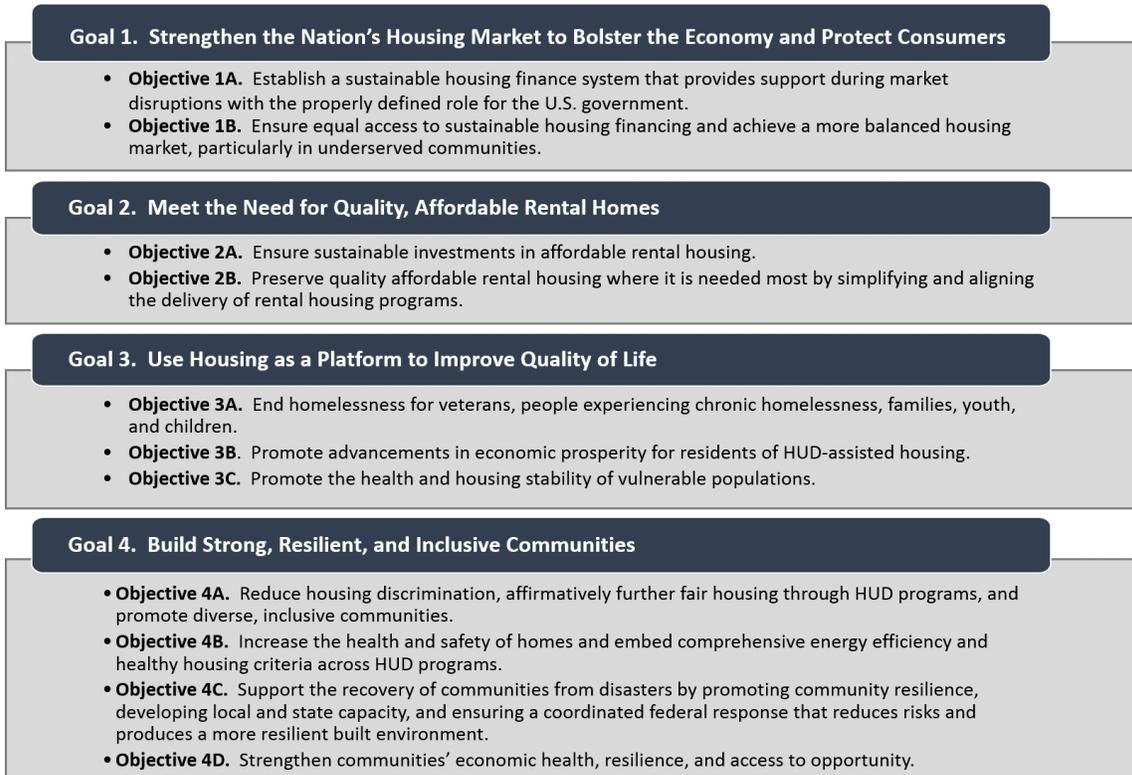


Figure 3-1: HUD's Strategic Goals



Annual Performance Report (APR) and Annual Performance Plan (APP). This plan provides detailed performance-related information to the President, the Congress, and the American people, and allows readers to assess HUD's performance, revisions to goals, and plans relative to its mission and stewardship of public resources.

The *Government Performance and Results (GPR) Modernization Act of 2010*³ establishes the requirement for a government-wide performance plan from all agencies and sets agency priority goals. HUD meets the GPR legislative mandate by identifying its Agency Priority Goals (APGs) and designating responsible Goal Leaders among senior-level executives to manage, oversee, and ensure accomplishment of HUD's priority goals. The APGs are described in HUD's Annual Performance Plan and Annual Performance. HUD's APGs are reported quarterly to OMB and published at Performance.gov to provide the public performance information, promoting accountability and transparency in the Federal government.



Figure 3-2: Sample Strategic Flow

The APR-APP is organized by strategic objectives. Strategic objectives are intended to reflect the outcome or management impact an agency is trying to achieve. Each objective is tracked annually through a specific set of performance indicators. **Figure 3-2: Sample Strategic Flow**, above demonstrates how the strategic goals, strategic objectives, performance goals, and Agency Priority Goals should cascade from the Department's Mission.

3.2 IT STRATEGIC ALIGNMENT

HUD is in the midst of a reinvention that is modernizing technology, processes, and policy in response to the growing need for increased transparency and improved service delivery to our customers. The Department's IT transformation is underway, centered on leveraging technology across HUD's mission areas rather than developing standalone capabilities within each mission area. This major shift in HUD's IT management



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<http://www.whitehouse.gov/omb/performance/gprm-act>



OCIO Mission

Enable delivery of HUD programs, services, and management processes by providing high-quality information, technology solutions, and services.

HUD IT Vision

All HUD customers will have modern information services and technology that are secure, accessible, and cost effective; meet their needs; and exceed their expectations.

practices enables true cost avoidance and streamlined technology costs by focusing on “economies of scale” opportunity savings, driven by integration and consolidation of IT investments and systems, and the development of enterprise shared services going forward.

FXXA **BXXA**

3.2.1 OCIO MISSION AND VISION

The mission and vision of the OCIO aligns with HUD’s mission, goals, and objectives. The CIO provides management advice and assistance to the Secretary of HUD and to other senior staff on information resources, investments, and operations. The CIO promotes a shared corporate vision about the Department’s information activities and provides services to effectively manage information and provide value-added enterprise-wide systems and infrastructure. **BXXA**

3.2.2 INFORMATION RESOURCE MANAGEMENT (IRM) STRATEGIC PLAN

HUD’s IRM Strategic Plan FY2014 - FY2018 provides the IT strategy and priorities that guide the architecture, investment, implementation, and management of IT throughout the Department. It provides a foundation by which IT supports the accomplishment of HUD’s mission. The IRM Strategic Plan lists HUD’s primary strategic goals that guide the OCIO performance and outcomes. **AXXA**

3.3 HUD PERFORMANCE MANAGEMENT

AXXA HUD’s consolidated FY2015 Annual Performance Plan (APP) & *FY2013 Annual Performance Report* (APR) provides detailed performance information that allows the President, Congress, and the American public to assess both the Department’s performance outcomes and HUD’s planned activities for the following fiscal year. The APP-APR document is organized by strategic objective, with each one emphasizing a key unit of performance analysis, as prescribed by the GPRA Modernization Act.

AXXA HUD’s Office of Strategic Planning and Management (OSPM) is responsible for monitoring and reporting Department wide performance outcomes, preparing the annual performance plan and report, and posting to the Performance.gov web site to promote transparency and accountability in the Federal government. HUD abides by the OMB performance reporting requirements aligned with the FEA performance architecture framework.

AXXA HUD’s performance architecture, depicted in **Figure 3-3: HUD’s Performance Architecture Framework**



shows the line of sight from HUD's Strategic Goals, Priority Goals, and Cross-Agency Priority Goals to the Measure Area, Measurement Category, and Key Performance Indicators. This format is also used to relate or associate segment and project goals to IT Strategic Goals, and to the enterprise level strategic goals.

AXXA HUD's Performance Architecture Framework aligns with the OMB Federal Enterprise Architecture (FEA) Performance Reference Model (PRM) but adds a Key Performance Indicator layer for quantitatively measuring intended outcomes. The PRM is composed of three layers: Goals, Measurement Areas, and Measurement Category. OMB's FEA Framework (FEAF) version 2.0 describes the new PRM taxonomy in greater detail to provide Federal agencies' consistent guidelines for implementation and usage.

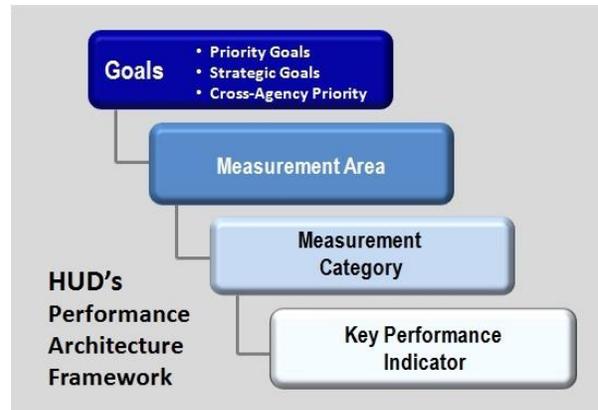


Figure 3-3: HUD's Performance Architecture Framework



4 CURRENT ENVIRONMENT

This section highlights the approach to collecting information about existing business activities, data and information structure, maintenance and management processes, systems and applications, IT infrastructure, and security components. Although the HUD EA is still identifying and collecting information about HUD's existing environment, this section presents findings from ongoing assessments that identify HUD business needs, gaps, and opportunities.

4.1 THE BUSINESS VIEW

HUD's business architecture provides the Department with a functional view of its business model and uses the OMB's FEA Business Reference Model (BRM) to categorize HUD's functional structure into distinct business segments. The segment view is based on business functions and cuts across all organizational boundaries of the Department. Segmentation enables comparisons between and across the business functions to reveal opportunities for business process reengineering, cost reduction, information sharing and deployment of shared services.

4.1.1 BUSINESS SEGMENT DESCRIPTION

At HUD, a segment describes an individual line of business (e.g., Homeownership) or a cross-cutting service (e.g., Grants Management). HUD utilizes its segments to streamline business processes and demonstrate the value of providing a business-function view of the Department as opposed to a "stove-piped" view. HUD has identified 18 different segments across the Department, as shown in **Figure 4-1**, and categorized them into three distinct layers:

- **Core Mission Areas:** HUD's Core Mission Areas represent a strategic view of HUD's primary business functions. Each mission area provides a unique set of business services to customers and plays a unique role in fulfillment of HUD's mission. Mission Areas provide business services to customers, either directly or indirectly, through HUD's business partners. **BXXA**
- **Business Services:** Business Services segments are high-level aggregations of related business processes and activities (e.g., Grants Management, Mortgage Insurance, and Human Resources Management). They represent the tactical view of HUD's business, as they are not uniquely associated with a specific mission area, but represent how things get done. A single mission area is typically supported by multiple business services. Likewise, a single business function may be performed within or support multiple mission areas. In fact, many HUD business services (e.g., HR Management, Financial Management, etc.) support all of HUD's mission areas.
- **Enterprise Services:** In HUD's EA framework, Enterprise Services represent the functionality associated with HUD's applications (e.g., case/ issue management, decision support). Over time, HUD envisions that it will replace its

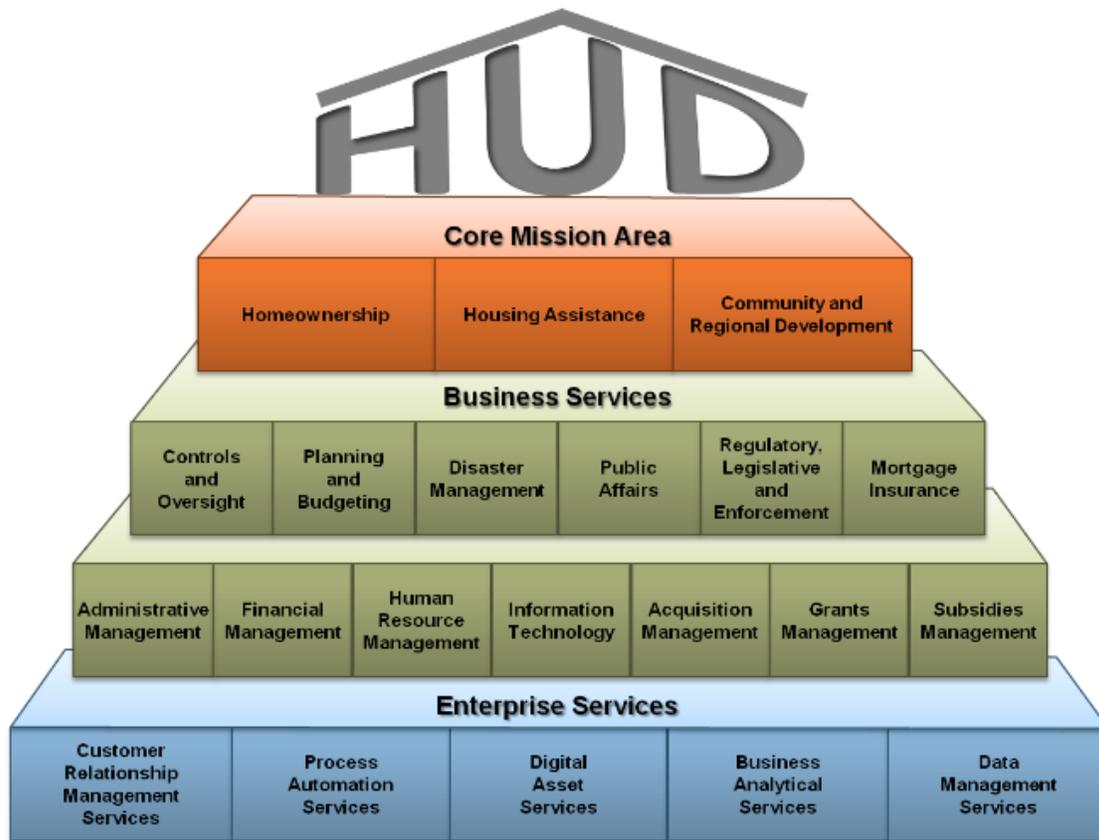


Figure 4-1: HUD's Segment's

legacy applications by coupling logical sets of enterprise services to capture, store, and manipulate data in support of HUD's business. A single business service would typically be supported by multiple enterprise services; likewise, a single enterprise service may be used to support multiple business services.

Figure 4-1: HUD's Segment's, shows the list of the segments categorized as core mission areas, business services, and enterprise services:

Core Mission Areas

Homeownership: The Homeownership core mission segment encompasses promoting sustainable homeownership,

including assisting homeowners at risk of losing their homes, enhancing the government's ability to stabilize the housing market and educating the public as to the benefits of homeownership.

Housing Assistance: The Housing Assistance core mission segment supports the development and management of programs that provide housing assistance to citizens, including the rental of single-family and multifamily properties, and the management and operation of federally supported housing properties. The Housing Assistance core mission segment also expands the supply of affordable rental homes, preserving the affordability and improving the quality of federally assisted and private unassisted affordable rental housing.



Community and Regional Development:
The Community and Regional Development core mission segment supports efforts by states, local communities, and other HUD partners in the construction and rehabilitation of homes, community structures and infrastructure, and other community revitalization and job creation efforts to preserve community assets. This core mission involves implementing HUD programs that provide financial assistance to our citizens in need of housing, like our elderly and disabled citizens. HUD supports the development of communities to provide access to affordable housing and prevent homelessness nationwide.

4.1.2 SEGMENT VIEWS

The dimensions of the segment views provide better insight into the impacts of future changes. Dimensional views help determine cross-functional requirements, define scope, assess impacts, and more accurately, calculate funding. While views are still being developed, HUD is currently using segment definitions to identify needs and prioritize funding for IT investments and projects. Segment descriptions follow.

- **Segment Aligned to Goals and Outcomes** - This view of the architecture shows the alignment of the segments to both HUD Strategic Goals and Agency Priority Goals, which helps ensure that IT investments align with HUD's strategic direction..
- **Segment/Functional Hierarchy** - This view of the architecture shows the alignment of segments to their underlying business functions and processes. This view can help perform impact analysis on possible changes when implementing initiatives or projects within a segment.

- **Segment to Organization (Program Offices)** - This view of the architecture shows the organizations that support the activities within a segment. When scoping an initiative this view can help identify which parties should be involved or impacted by the effort.

4.1.3 BUSINESS SEGMENT ASSESSMENT AND OPPORTUNITIES

Recent HUD improvement assessments recommended the need to restructure HUD's segments from a functional rather than from an organizational perspective. The result is the realignment of HUD's IT investments to the 18 newly restructured segments used in the planning, funding, and execution of IT initiatives and projects. Some of the assessment findings on business operational capabilities and opportunities are listed below.

- Due to the evolution of HUD programs and their IT development, multiple business units are performing similar business functions, such as grants management, loans (insurance, guarantees and direct loans), and subsidies management.
- HUD lacks a comprehensive view of its enterprise-wide functional business capabilities. Multiple business units are performing similar functions, yet using independently managed systems. This results in duplicate/incorrect data on separate systems, as well as databases causing inefficiencies and increased cost.
- HUD lacks a consolidated view of the Business and IT portfolio through enterprise architecture. Therefore, there is no comprehensive understanding of business needs that are mapped to IT initiatives. Additionally, this prevents effective life cycle management and enterprise decision making.



- HUD's core mission area visibility into available funding and delivery of funding to recipients is limited, therefore making it difficult to manage the budget forecasting process accurately.

4.1.4 SEGMENT GOVERNANCE

Currently, segment governance has not been formally established. However, as mentioned earlier, HUD is already using the available information on segments to establish investment portfolios. Segment leaders have been assigned, and leaders of the more mature and priority segments are moving forward and making decisions for their initiatives. Examples include: Grants Management (HEARTH e-Grants Implementation), Mortgage Insurance (FHA Modernization), Subsidies Management (Next Generation Management System), and Financial Management (New Core Financial Services). However, a more formal process for coordinating program management across segments would be useful to ensure consistency across HUD.

4.2 DATA AND INFORMATION

Enterprise information management allows an organization to accurately define, integrate, utilize, and retrieve data for various programs across HUD business areas, and HUD has been making progress in improving its data assets and reducing the cost and complexity of managing data. Many of the current HUD IT projects are now leveraging data-management industry best practices to improve the management of their data and increase the value and reuse of the data they collect. Increased use of data standards, standard data documentation tool sets, geospatial standards and data exchange standards will yield greater effectiveness and efficiencies in HUD programs.

HUD's data architecture provides the Department with a logical view of its data and uses the OMB's FEA Data Reference Model (DRM) to categorize HUD's data integration needs. The data view crosses organizational boundaries and helps identify opportunities for cost reduction, information sharing, and deployment of shared data.

4.2.1 DATA CAPABILITY ASSESSMENT AND OPPORTUNITIES

HUD has a number of information and business problems that are related to the data architecture and data management practices at HUD. The EA Practice and the HUD Data Stewards Advisory Group (DSAG) conducted studies and reviews in 2012-2013 of HUD data management (DM) practices and identified some data management-related deficiencies from their segment architecture development efforts and IT project support. Some of these deficiencies are as follows:

- **Data Redundancy:** Many copies of the same data exist due to organization and IT technical architecture silos. It is expensive to maintain this duplicative data, and this data often leads to reporting misinformation.
- **Metadata Management:** Data is not properly documented, which leads to a lack of sharing, confusion, and misinterpretation of its content.
- **Data Quality:** Inaccurate data due to missing or inadequate data validation or poorly understood valid values.
- **Data Definition Standards:** Data from multiple programs that have the same business meaning but cannot be used or aggregated due to inconsistencies in the structure or definition of domain values resulted in increased efforts and cost to use in reporting and decision making.



- **Data Technology and Tools Standards:** This lack of standards led to poor data integration and data sharing because of dissimilar technologies and tools being used across the Department. This also leads to a lack of data management knowledge sharing and increased training costs due to the lack of standardized technology.
- **Enterprise Data Governance Practice:** A core function of any organization's data management and architecture programs, governance provides the authority and control over data and data-related activities. An effective governance practice ensures that the various programs and offices at HUD will define, use, and control data in a consistent and efficient manner that will maximize the value of HUD's data assets. Currently, data management policies and standards that are in place at HUD are not consistently enforced. This lack of enforcement of policies and standards perpetuates a lack of quality in the data and in the documentation of the data, which limits its use and increases the cost to manage it.
- **Legacy Data Systems Data Management:** The majority of HUD's data is managed by decades-old applications and currently is not required to meet these standards due to the high cost of reengineering the systems and the limited budgets to do such work. In order to improve data management at HUD, a plan and resources for migrating to the standards in place, as well as ones that will be approved in the future, must be developed and adopted. Without these resources, HUD will continue to suffer from high levels of data duplication, costs that are higher than industry standards to maintain the data, and a loss of data quality and integrity.

4.2.2 OMB OPEN DATA POLICY

In May 2013, the Office of Management and Budget (OMB) issued M-13-13 – *Memorandum for the Heads of Executive Departments and Agencies, Open Data Policy—Managing Information as an Asset*. This memorandum states that in order to ensure that the Federal Government is taking full advantage of its information resources, executive departments and agencies must manage information as an asset throughout its life cycle to promote openness and interoperability, and properly safeguard systems and information. HUD has been a leader in providing high-value data and information to communities and researchers in housing and community development in order to support the creation of programs to improve housing opportunities for the public. Its Web site, HUDUser.org, has for many years provided HUD-collected raw data and integrated data from HUD's Office of Policy, Development & Research (PD&R). When the current administration updated policies for sharing government data with the public, HUD supported the initial policy by providing many of its high-value datasets to the public via the new Web site, data.gov. Since the Open Data Policy was expanded in 2013, HUD has been growing its enterprise inventory and has continued to engage with each Program Area to identify data assets and whether those data sets can be made available to the public.

For datasets that are permitted to be shared with the public, metadata is created to describe the data and how it can best be used by the public. To date, HUD has a total of 172 public datasets listed on data.gov and an additional 26 non-public datasets listed within its Enterprise Data Inventory (EDI).



The OCIO works closely with its partners PD&R and the Office of General Council (OGC) to identify datasets. Documentation on HUD's [Digital Strategy page](#) provides some of the key guidance that HUD has developed to manage this process.

Currently the enterprise data governance process at HUD is performed by the Data Stewards Advisory Group (DSAG). The DSAG provides a forum for data stewards, representing various Program Areas across HUD to discuss and resolve data management challenges and issues. Increased executive management support has increased DSAG membership, meeting attendance, and data management activities in 2013.

4.2.3 DATA MANAGEMENT AND GOVERNANCE ACCOMPLISHMENTS

HUD is currently working on improving its data management practice in many of the key areas mentioned above. Some of the data-management improvement projects and activities include:

- Both the FHA Modernization and the Ginnie Mae Integrated Pool Management System (IPMS) Upgrade projects are planning to use the mortgage banking industry data exchange standard called Mortgage Industry Standards Maintenance Organization (MISMO) in their new system's data architecture.
- Investments in geospatial data standards and enterprise standard mapping software is allowing HUD programs to better visualize its place-based data, provide better service to the public, generate greater program efficiencies, and support greater data sharing across HUD and the Federal Government.

- The contract award for the creation of a Master Data Management environment and key business master datasets provide HUD with better data quality, facilitate data reuse, reduce redundant data, and provide HUD business areas with a single source for key common HUD data entities. Once developed, the Master Data platform will contain definitive attributes across the master data entities of people, properties, units, households, neighborhoods, and organizations.
- HUD's enhancements to the Homeless Management Information Systems (HMIS) Data Standard will provide seamless data exchanges between HUD and the many local homeless assistance groups across the country, and will allow HUD to integrate data from many different providers to produce valuable information on the state of homelessness and the effectiveness of the programs created to fight it.
- HUDStat, the name for the Department's performance review process and the IT system that supports it, has been a major catalyst for data quality improvements across the Department over the past three years. HUDStat has been increasing executive and managerial engagement by providing performance data on a regular basis to inform decision making. Increasing use of HUDStat is advancing progress toward identifying gaps and weaknesses and taking appropriate corrective action for Department performance data, both for the operational and the programmatic sides of HUD's business. For example, HUD's rental housing content in HUDStat catalyzed significant data cleanups in the PIH Information Center (PIC).

The two data management initiatives, "Master Data Management (MDM)" and



“Enterprise Data Modeling, Metadata Management and Data Governance,” started in late 2013, should provide great benefits in the areas of metadata management, data technology and tools standards, and data quality, including reducing data redundancy. To ensure their success and the improvement of data management at HUD, these projects will need continued funding, management support, and focus.

4.3 CURRENT APPLICATIONS AND SYSTEMS ENVIRONMENT

For the past several years, there has been a major reduction in new development due to funding limitations for the existing HUD systems and applications. HUD’s system of records is the Inventory of Applications System (IAS), as well as the HUD IT Asset Inventory, which provides a list of Application Systems under each HUD segment. It is used by the OCIO staff in performing configuration management, change and release management, and is used as a reference when conducting system Certification and Accreditation (C&A) to comply with IT security requirements.

4.3.1 SYSTEM VIEWS

At HUD, the identification of projects is often grouped under systems and initiatives, and system views are being designed to provide insight into the issues and impacts of future changes. Currently, HUD is using system and project definitions to identify needs and prioritize funding for IT investments and projects. System views will help assess impacts, determine scope, and more accurately calculate funding. While many views are complete, others are still in progress. View artifacts in their current state of completion are described below.

- **System Interface Diagrams** depict the complexity of the flow of data between systems and are instrumental in assessing the degree of impact to existing systems and organizations.
- **Project Information Report** documents project justifications criteria and results, and shows how each initiative, system and project will support HUD goals. AXXA
- **IT Asset Inventory** (see Appendix 3) depicts all of HUD’s systems and initiatives, and their relationship to HUD’s business segments and FEA Reference Models. The IT Asset Inventory helps satisfy an OMB requirement for Enterprise Roadmap reporting. It also provides HUD a line-of-sight to HUD’s priority goals, which can help justify budgeting decisions.

4.3.2 APPLICATIONS AND SYSTEMS ENVIRONMENT ASSESSMENT

The current state of HUD’s system and applications environment:

- HUD has 400-plus software products, often providing duplicative functionality and there is no defined exception process or penalties for failure to adhere to standards.
- HUD lacks enforced processes, and governance oversight for collecting technical information regarding HUD systems. Current technical information about the systems is of varying accuracy and completeness. This results in a challenging effort to execute sound strategic planning decisions for platform and software migrations, standardization, and IT administration.
- Individual systems were present with up to four different database platforms identified. Example: The TRACS system has IBM DB2, FoxPro,



Lotus Notes, MS Access, and Sybase listed.

- Multiple systems identify Netscape Navigator as the standardized browser. This technology was retired from HUD's IT environment approximately 5 years ago.
- Systems are listed with multiple versions of the same platform. Example: Single Family Housing Data Warehouse has Sybase ASE v15.0, "pre" v15.0, v12.5, and Sybase ASIQ 12.
- Systems specify HUD contacts who are no longer associated with the project and oftentimes are no longer with the Department.
- Although platforms and databases are defined, they are varied in both type and versions across the organization. Numerous platforms and database types, versions, and service packs result in a complex environment that is costly to maintain and difficult to support.

4.3.3 APPLICATIONS AND SYSTEMS GOVERNANCE

4.3.3.1 HUD Application Reference Model (ARM) and Product Standards Profile (PSP)

The Application Reference Model (ARM) supports architectural analysis and reporting in an application's sub-architecture view of the overall EA. The ARM is a component-driven taxonomy that categorizes the system and application-related standards and technologies that support and enable the delivery of service components and capabilities. It also unifies existing Department application portfolios and guidance on standard desktop configurations by providing a foundation to advance the reuse and standardization of technology and service

components from a Federal Government perspective. Exhibit L "FEA ARM Mapped to HUD Technology Product" depicts categorization mappings to current technologies.

The HUD ARM has three areas: Systems, Application Components, and Interfaces. Systems are discrete sets of information resources, organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information in support of a business process. Application Components are self-contained software that can be aggregated or configured to support (or contribute to achieving) many different business objectives. Interfaces are protocols used to transfer information between systems.

It is important to note the context in which HUD's ARM differentiates an application standard versus an application. HUD applications are developed and/or acquired based on the defined application standards supported by the infrastructure. This ensures the application will work within HUD's environment and be interoperable with other applications with little to no additional customization or risk of security gaps. Below are the three standard categories HUD uses to define their applications.

- **Standard Supported** - these are applications that are supported by IT Operations.
- **Approved: Non-Supported** - these are applications that are allowed within the HUD environment, but not supported by IT Operations.
- **Obsolete: Non-Supported** - these are technologies that have been identified to be removed from the HUD



environment and are not supported by IT Operations.

Application standards enable improvements such as reduced costs, more efficiency, and reuse. From a stakeholder perspective, the ARM defines the application standards and is void of any version, iteration or release. To determine versioning of a specific application, stakeholders will need to consult the Product Services Profile (PSP). Additionally, the PSP depicts the current status of installed software, as well as the target versions of the major software installed within the HUD infrastructure. This provides stakeholders with information from a past, present, and future perspective to make informed decisions for new and ongoing IT efforts. Standards, versions, and dates regarding applications are described below:

- **Current:** Specification or product version in use generally within a release. Non-conforming components or components conforming to a prior version of the standard or application should be brought up to the current version as soon as possible.
- **Legacy:** Specification or product version which is still in use and approved. An approved plan is required for a transition to the Current version, or the removal of the standard or application. This is synonymous with the term deprecated, referring to an application being phased out, but still supported.
- **Obsolete:** Specification or product that is no longer approved for use in

any component. This is typically referred to as EOL (End of Life).

- **Retired:** Specification or approved products that have been removed from the HUD's IT infrastructure and has completed its EOL. It is used for historical reference.

4.3.3.2 *HUD Project Planning and Management Lifecycle*

HUD's Project Planning and Management (PPM) Life Cycle V2.0⁴ is the rigorous application of sound investment and project management principles and best practices that define a standard approach to successful project delivery through a consistent and repeatable integration of practices and policies. While any project can use this framework to structure, track, and manage activities and deliverables, it provides the context for the HUD IT governance process and describes the interdependencies between its project management, investment management, and capital management components. The PPM replaced HUD's Systems Development Methodology (SDM) to have a more flexible and agile IT system implementation.

HUD's PPM policy applies to all HUD IT projects, including all information systems acquired, developed, enhanced, or maintained by HUD. These projects include Commercial Off-the-Shelf (COTS) software, Government Off-the-Shelf (GOTS) software, and e-Gov systems utilized directly within the HUD network. The policy also applies to applications and general support systems - whether internal or contractual, infrastructure, or programmatic - and administrative

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http://portal.hud.gov/hudportal/HUD?src=/program_offices/cio/ppm



systems and projects. The policy established the PPM life cycle, which integrates tenets of the Project Management Institute, and those of the System Development Life Cycle (SDLC), for all of HUD's IT projects. This recognizes a standard method and procedures in all phases of SDLC from a need/concept phase to its decommissioning phase. This Policy requires:

- All HUD projects that involve planning acquisition, management, and use of IT capital assets to be managed in accordance with the HUD PPM Life Cycle.
- All HUD IT stakeholders, including executive sponsors, managers, and project team members, to participate in HUD IT projects in accordance with the requirements of the PPM Life Cycle. CXXB
- All IT projects to have an assigned Program Sponsor/Owner, Business Project Manager(s), and IT Project Manager(s) who possess the required competencies, experience, and certifications for the project(s) being managed.
- Each IT project to produce a detailed project schedule that defines tasks at a level of detail that provides schedules, milestones, and resources necessary to ensure successful project execution.

HUD's new PPM framework enables the business areas to successfully achieve their IT goals through relevant guidance and expertise provided by IT Project Managers and Governance Bodies. **Figure 4-2: Project, Planning and Management**



Figure 4-2: Project, Planning and Management Process

Process shows the major phases of the PPM life cycle.

4.4 NETWORK AND INFRASTRUCTURE

HUD has a vast infrastructure that stretches across the United States its territories. The following section will present HUD's current infrastructure by first looking at the overall network and providing a high-level assessment of the gaps that have been identified within the environment.

4.4.1 HUD'S NETWORK

A key component to any technical architecture is the network infrastructure.

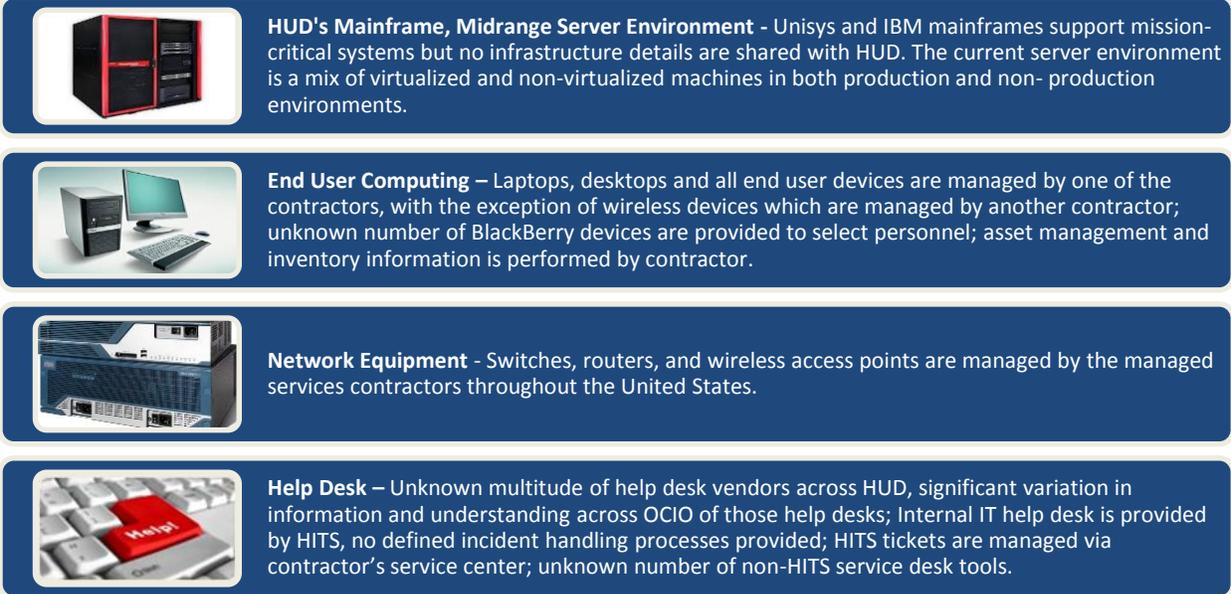


Figure 4-3: HUD's Technology Overview

HUD's network infrastructure is comprised of a wide area network (WAN) architecture with hubs in technology centers located around the United States.

4.4.2 HUD'S DATA CENTERS

HUD has four data centers that are run by managed services contractors. These managed services contractors are not contractually obligated to provide information pertaining to workflow management processes or tools. The four datacenters are: Lanham, MD - WAN, LAN, change Email, Database Management; Orlando, FL - Disaster Recovery (DR) Backup Site; Charleston, WV - Applications, Databases, Storage, Blackberry; Philadelphia, PA - DR Backup (SunGuard).

4.4.3 HUD'S TECHNOLOGY OVERVIEW

HUD uses a variety of technologies in its day-to-day business. **Figure 4-3: HUD's Technology Overview**, on the next page, provides a high-level look at the types of technologies in use at HUD. HUD's enterprise repository provides a complete listing of all hardware technologies currently deployed within HUD's infrastructure.

4.4.4 IT INFRASTRUCTURE ASSESSMENT

A recent assessment of HUD's IT systems environment⁵ identified a series of key findings that reinforced the need for HUD to further standardize its current IT infrastructure. Key findings include:

- HUD's IT infrastructure is complex, decentralized, and redundant.
- HUD's IT investment and systems development practices are siloed.

⁵ HUD IT Current State Assessment Study conducted by Powertech/KPMG October 2010



- Aging and/or obsolete IT products continue to be maintained.
- HUD's IT portfolio includes over 400 products, many with multiple supported versions.
- Platforms and databases vary and are inconsistent, both across the Department and within organizations.
- There are numerous redundant systems, many of which are not mapped to enterprise processes.

HUD's management team initiated HUDNET to address these findings and look at the overall managed services contract to determine the best path forward for improving HUD's infrastructure. HUDNET has been replaced with HEAT for the next phase of this effort.

4.4.4.1 *Infrastructure Gaps*

During the assessment⁶, IT Operations, IT Security, and the HUD Program Areas collaborated and identified the following key gaps:

- HUD is only responsible for the application layer and not the infrastructure, reducing the efficiency of maintenance and improvements.
- HUD currently has multiple obsolete and unsupported software packages running in its environment, which introduces maintenance issues and security risks.
- HUD currently lacks the actual cost data on the various IT components and services, impeding IT infrastructure planning.

- There is no independent engineering support group to help guide HUD's infrastructure.

HUD management has begun working with the OCIO office to address and close these gaps, and generally to modernize HUD infrastructure with respect to HEAT.

The lack of standardization at HUD impedes modernization efforts and adds undue costs. Several mission-critical systems remain on outdated legacy platforms that cannot easily leverage or integrate with newer technologies. Further, more than 400 IT products are running on multiple and unsupported versions. Standardizing hardware and updating software would simplify the environment, facilitate integration, and reduce licensing, maintenance, and support costs.

4.4.4.2 *ITIL Best Practices*

HUD is currently in the process of implementing the Information Technology Infrastructure Library (ITIL). "ITIL is a set of practices for IT Service Management that focuses on aligning IT services with the needs of the business."⁷

4.4.5 **CURRENT INITIATIVES**

HUD is currently undertaking two initiatives that will transform its major business systems, maximizing efficiency and reuse through the deployment of enterprise services, and transforming HUD's ability to maintain and govern a simplified and modernized technology environment.

- HUD recently launched the IT Modernization initiative to update its

⁶ HUD IT Current State Assessment Study conducted by Powertech/KPMG October 2010

⁷ <http://en.wikipedia.org/wiki/ITIL>



major business systems, maximizing efficiency and reuse through the deployment of enterprise services and transforming HUD's ability to maintain and govern a simplified and modernized technology environment.

- HUD began the process of evaluating its existing managed services contractor support contract that was implemented back in 2005. This initiative, known as HEAT, will provide the next infrastructure solution for HUD.

4.4.6 CURRENT GOVERNANCE

HUD's Configuration Change Management Board (CCMB) is the governing body responsible for approving new and/or updated infrastructure items. The CCMB is well established within HUD and meets on a monthly basis to discuss new requests.

4.5 SECURITY CONTROLS

Information and information systems security have never been more critical to the business mission at the Department than it is today. Without proper security controls, HUD would not be able to accomplish its mission successfully. At the same time, the information technology ecosystem that houses HUD's mission-critical information assets has become increasingly more complex. To protect information and information systems properly, HUD is working to ensure that information security is interwoven into the business processes and technology solutions throughout the Department. [EXXB](#) [EXXA](#)

4.5.1 ENTERPRISE SECURITY ARCHITECTURE

[EXXB](#) [EXXA](#) HUD's Enterprise Security Architecture aligns with the Federal Information Security Management Act

(FISMA) guidance for managing information security and it applies to all information systems used or operated by a Federal agency or by a contractor or other organization on behalf of a Federal agency. This framework is further defined by the National Institute of Standards and Technology's (NIST) standards and guidelines for government-wide implementation. It includes the following:

- **Information Systems Inventory** - FISMA requires that agencies have in place an information systems inventory. HUD developed and continually maintains IAS, which provides an inventory of HUD's major information systems. [EXXB](#) [EXXA](#)
- **Security Categorization According to Risk Level** - HUD complies with the mandatory security standard required by the FISMA legislation, FIPS PUB 199 "Standards for Security Categorization of Federal Information and Information Systems," providing definitions of security categories. [EXXB](#) [EXXA](#)
- **Security Controls** - HUD follows the security guidelines in NIST FIPS 199, Standards for Security Categorization of Federal Information and Information Systems, and the FIPS 200, Minimum Security Requirements for Federal Information and Information Systems. HUD also executes the appropriate security controls and assurance requirements, as described in NIST Special Publication 800-53, "Recommended Security Controls for Federal Information Systems. [EXXB](#) [EXXA](#)
- **Risk Assessment** - HUD's risk assessment validates the security control set and determines if any additional controls are needed to protect its operations (including mission, functions, image, or reputation), Departmental assets, individuals, and other organizations. The resulting set of security controls



establishes a level of “security due diligence” for HUD and its contractors. HUD adopts the NIST Information Security Automation Program (ISAP) and Security Content Automation Protocol (SCAP) that support the approach for achieving consistent, cost-effective security control assessments. [EXXB] [EXXA]

- **System Security Plan** - HUD performs the system security planning process, as prescribed by NIST SP-800-18, which involves the development of System Security Plans. System Security Plans are living documents that require periodic review, modification, and plans of action and milestones for implementing security controls. HUD has procedures in place outlining who reviews the plans, keeps the plan current, and follows up on planned security controls. It is the major input to the security certification and accreditation (C&A) process for the system. [EXXB] [EXXA]
- **Certification and Accreditation** - HUD complies with the OMB Circular A-130, Appendix III8, security accreditation requirements for quality control, and encourages managers and technical staffs at all levels to implement the most effective security controls possible in an information system, given mission requirements, technical constraints, operational constraints, and cost/schedule constraints. By accrediting an information system, HUD accepts responsibility for the security of the system and is fully accountable for any adverse impacts to the Department if a breach of security occurs.

- **Continuous Monitoring** - HUD’s accredited systems are monitored, as defined by a selected set of security controls, and system documentation is updated to reflect changes and modifications to the system. HUD’s continuous monitoring activities include configuration management and control of information system components, security impact analyses of changes to the system, ongoing assessment of security controls, and status reporting. HUD has established the schedule for control monitoring to ensure adequate coverage is achieved. [EXXB] [EXXA]

4.5.2 SECURITY COMPLIANCE

The Chief Information Security Officer (CISO) enforces the Federal Information Security Management Act of 2002 policy through oversight of the HUD Information Technology Services (HITS) contractors to ensure they are fully compliant with federal laws and regulations. However, interviews with the CISO and other HUD personnel suggest that HUD employees are not fully aware of HUD security policies, making policy enforcement inconsistent. [EXXB] [EXXA]

HUD security policies address system security plans, development and testing, visitor control, incident response, patch management, and Computer Incident Response Team (CIRT) processing. Additional policies can be found in the Standard Operating Procedures (SOP) maintained by contractors and other privileged individuals, including the CISO, IT operations staff, and other security staff in various HUD locations. HUD’s Information Technology Security



Procedures⁹ follow NIST SP 800-53 v3¹⁰, *Recommended Security Controls for Federal Information Systems and Organizations* guidance, as detailed in the Information Technology Security Policy Handbook¹¹. [EXXB] [EXXA]

4.5.2.1 *Privacy and Personally Identifiable Information (PII)*

The Privacy Office, in partnership with the program offices, ensures that Personally Identifiable Information (PII) is protected through efforts to significantly reduce and minimize the use of Social Security numbers (SSNs) and PII in HUD IT systems. Through these efforts, the Department is able to review controls that are in place and ensure that only the appropriate authorized personnel have access and the responsibility to verify controls through continuous monitoring. The Privacy Office works closely with the Office of IT Security, Privacy Liaison Officers, and the Information System Security Officers (ISSOs) to ensure these efforts are complete and to provide the necessary guidance for security and protection best practices. [GXXB]

4.5.2.2 *IT Security Assessment*

Since its creation in fall 2008, the Identity, Credential, and Access Management (ICAM) program has been addressing challenges, issues, and design requirements for digital identity,

credential, and access management, and defining and promoting the Federal Identity, Credential and Access Management (FICAM) Roadmap & Implementation Guidance (FICAM¹² Roadmap). The FICAM Roadmap offers a common ICAM implementation framework and supporting implementation guidance for federal agencies. [GXXB]

In August 2012, the OCIO assessed HUD's native ICAM environment against the FICAM recommendations. The assessment served as the first stage in the effort to bring HUD's systems into compliance with several Federal mandates, including OMB M-11-11¹³, which requires the use of PIV cards for accessing electronic resources, such as Web-based applications. In January 2013, a draft of HUD's FICAM Assessment and Roadmap¹⁴ was completed, yielding significant findings and recommendations regarding security gaps. However, since the findings contain sensitive security information, they cannot be detailed in this document. [GXXB]

9

<http://www.hud.gov/offices/adm/hudclips/guidebooks/2400.25G/240025g9SecProdGUID.doc>

10

http://csrc.nist.gov/publications/nistpubs/800-53-Rev3/sp800-53-rev3-final_updated_errata_05-01-2010.pdf

11

<http://portal.hud.gov/huddoc/240025CIOH.pdf>

¹² <http://www.idmanagement.gov/identity-credential-access-management>

¹³

<http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-11.pdf>

¹⁴ Internal document, please contact HUD for reference



5 TARGET STATE

HUD is continuing to move towards a mission-driven, customer-focused environment, making it easier for HUD to access and provide the information that business users and external agencies need on a timely basis. HUD's enterprise-wide information strategy serves to ensure that reliable information will be available on demand. In place of multiple independent applications that support a single function or process, there will be agile, interoperable applications that can more easily adapt and integrate to meet emerging business needs. HUD will experience better integration between applications and services, more sharing and reuse, improved access to services and data, and lower costs for maintaining applications, systems, and technology infrastructure.

AXXA The path to the desired future state requires developing and applying a target architecture that aligns to HUD's mission and performance goals. The analysis for achieving the desired future state will identify:

- Opportunities to consolidate, integrate, and reduce redundancies, advance technology, and share services across segments;
- Opportunities to streamline data access and improve data integrity through the implementation of recommended best practices in Enterprise Information Management;
- Opportunities to decommission or retire redundant or inefficient systems, applications, and infrastructure; and
- Recommendations to establish and enforce IT architecture standards and governance across HUD.

AXXA CXXD CXXE CXXF CXXG HXXA The HUD Target EA is developed and updated in accordance with the OMB *Common Approach to FEA* (May 2012), OMB *Federal Enterprise Architecture Framework (FEAF) v2* (January 2013) and other guidance as listed in the document. The Target EA relates HUD's strategic and priority goals to performance measures, business processes, data and information needs, supporting systems and applications, technology products, capabilities, infrastructure, IT security requirements, and HUD's Information Technology Investment Management (ITIM) processes. The HUD FY15 Target Architecture is being developed and updated in collaboration with business and technical staff across the Department.

The HUD Target EA as shown in **Figure 5-1: HUD Target Services and Capabilities**, depicted in a smaller scale for reference, illustrates a high-level conceptual view of the various architectural components that describe the Department. The Target EA diagram provides a high-level graphical overview depicting HUD's business model and technical environment to facilitate a common understanding. More detailed information is stored in the EA repository for sharing and reuse.

HUD FY2015 Enterprise Roadmap Target Services and Capabilities

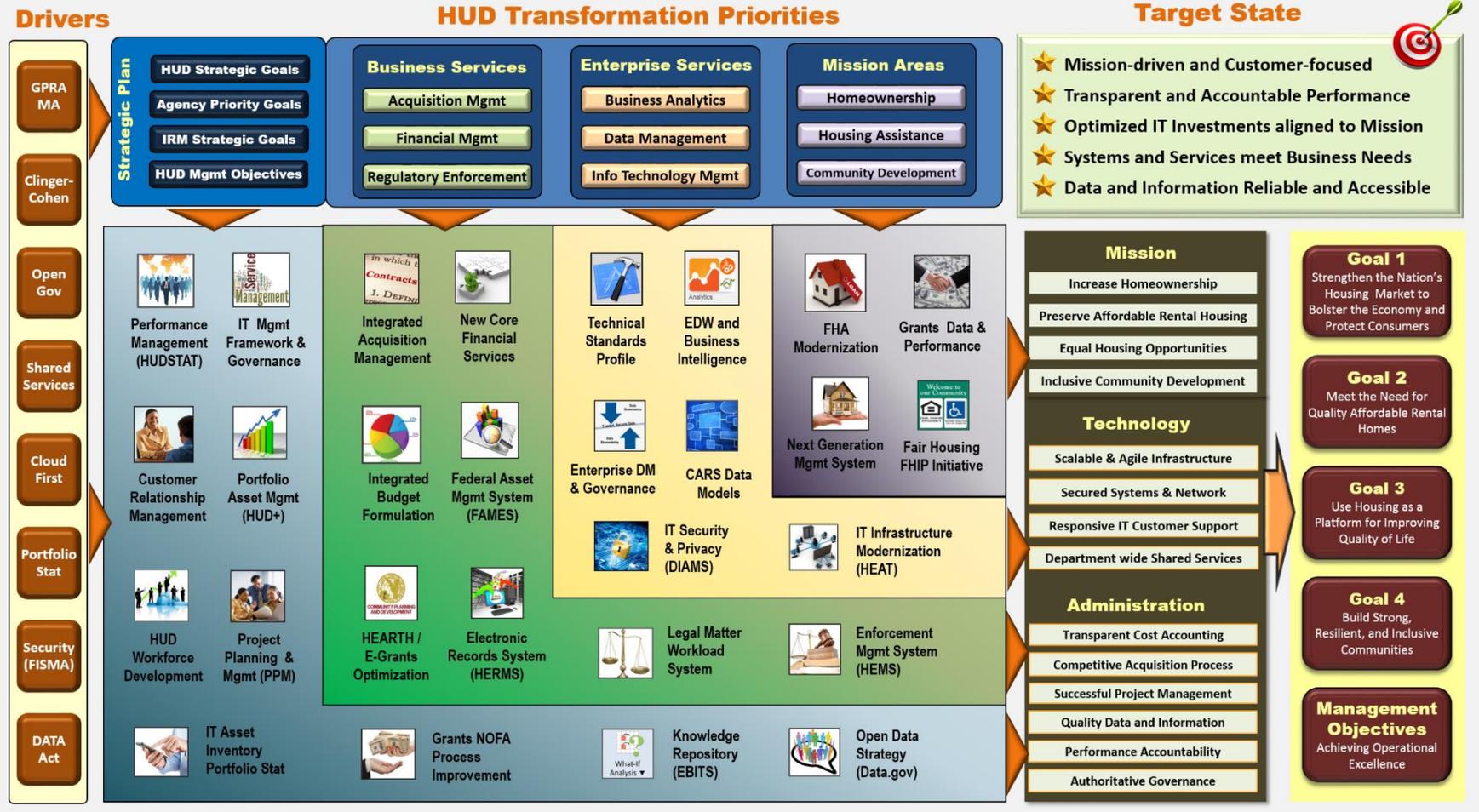


Figure 5-1: HUD Target Services and Capabilities



The Target EA's architectural components depicted in Figure 5-1 are described below.

- **Customers:** HUD exists to serve a broad range of customers. There are many types of customers who use HUD's services, including citizens, businesses, other government agencies, and HUD employees. As illustrated in the framework, there are two primary means by which customers receive HUD products and services, either directly from HUD or indirectly through one of HUD's business partners. [BXXA]
- **Partners:** Many of HUD's services are provided through a network of business partners. A partner is any organization that has a formal relationship with HUD and is focused on the delivery of HUD's products and services or fulfillment of its mission. HUD has tens of thousands of partners, including businesses, other government agencies, and not-for-profit and public interest groups. Partners are nested within the Customers box in the framework because the organizations that partner with HUD may have multiple distinct relationships or roles with respect to HUD. In some cases, the organization may be a partner in fulfilling HUD's mission. In other cases, it may be a customer using a HUD service. [BXXA]
- **Mission Areas:** HUD's Mission Areas, as discussed in the current architecture section, represent a strategic view of HUD's primary business functions. Each mission area provides a unique set of business services to customers and plays a unique role in fulfilling HUD's mission (e.g., Single Family Housing). Mission Areas provide business services to customers, either directly or indirectly, through HUD's business partners. [BXXA]
- **Business Services:** Business services are high-level aggregations of related business processes and activities (e.g., Grants Management, Mortgage Insurance, and Human Resources Management). They represent the tactical view of HUD's business, as they are not uniquely associated with a specific mission area, but represent how things get done. A single mission area is typically supported by multiple business services. Likewise, a single business function may be performed within or support multiple mission areas. In fact, many HUD Functions (e.g., Financial Management, Acquisition Management, IT Management, etc.) support multiple HUD mission areas.
- **Enterprise Services:** In HUD's EA framework, enterprise services represent the functionality associated with HUD's applications (e.g., case/issue management, decision support). It is envisioned that HUD's legacy applications will, over time, be replaced by coupling logical sets of enterprise services to capture, store, and manipulate data in support of HUD's business. A single business service is typically supported by multiple enterprise services. Likewise, a single enterprise service may be used to support multiple business services.
- **Data:** HUD's Target Data Architecture sets forth a framework for the governance, integration, and data management approaches necessary to support HUD functions in the completion of its mission and goals. The Target Data Architecture emphasizes the use of shared enterprise information management resources and services to provide improved security of privacy data, improved accuracy, and to increase the timeliness, and credibility of HUD's data.



- **Technology:** HUD’s technology layer consists of “the standards, specifications, and technologies that collectively support the secure delivery, exchange, and construction of business and application components (service components).”¹⁵ A single service component may use multiple technologies. Likewise, a single technology may support multiple service components.
- **Security:** Security architecture represents the critical components for a safe and secure management of the Department’s assets, resources, and operations. Within HUD’s service components, “Security Management” is a service type consisting of numerous security-related service components. Under the Technology Layer, “Security” is a service category consisting of security-related technologies.
- **Performance:** Performance in the Target EA represents HUD’s strategic goals and agency priority goals associated with HUD’s performance measurement categories, based on the performance architecture framework. Detailed performance measurements and indicators are detailed in HUD’s Performance Architecture (FY2012) document. Line of sight diagrams provide mapping of IT investments to HUD’s strategic goals and priority goals.¹⁶ AXXA

The following sections discuss key findings and recommendations to move HUD towards the desired future state through the architectural layers of EA analysis, including business; data and information;

applications; network and infrastructure; and security controls.

5.1 BUSINESS FUNCTIONS

5.1.1 TARGET BUSINESS FUNCTIONS

The business functions, at the highest level, form HUD’s segments. These functions cut across organizational boundaries of the Department. Each future state of a segment will be defined in greater detail to enable comparisons of business functions and processes across the business areas to identify opportunities for cost reduction, information sharing, and shared services. The business architecture serves as a framework for understanding HUD’s business functions and processes and how they relate to the other architecture layers (i.e., performance, data, application, technology). Although HUD’s business functions will likely remain unchanged over time, business modernization will drive changes to business process that will, in turn, drive requirements for new capabilities and technologies.

5.1.2 TARGET BUSINESS VISION

Target business architecture will facilitate:

- The sharing of best practices across the Department.
- The sharing and reuse of common business resources in support of multiple business functions.

¹⁵ The Technical Reference Model (TRM) Version 1.1, Federal Enterprise Architecture Program Management Office, August 2003.

¹⁶ HUD’s Performance Architecture and Line of Sight diagrams are internal document.



- Process improvements to identify duplicate or common business functions and processes.
- The reengineering of business processes.
- The creation of HUD's Business Modernization Plans.

By documenting and analyzing the business architecture, HUD is able to leverage best practices across program areas to streamline and consolidate IT investments to better meet business needs. This will create a more customer-oriented environment, which will allow HUD to quickly respond to customer needs. This will ultimately result in lower overall costs and provide better services to the citizens of the United States.

5.1.3 TARGET BUSINESS IMPROVEMENT INITIATIVES

The most prominent segment business functions are evolving to further define and shape HUD's target business architecture, as described below. These initiatives will transform the way HUD does business through reengineering systems and processes, and consolidate systems to be more customer-focused, operate more efficiently, and reduce costs..

5.1.3.1 *New Core Initiative in Financial Management Segment*

The goal of HUD's New Core Initiative is to transform HUD's core financial management processes and systems to improve the financial information accuracy and better support HUD's decision making. The New Core Initiative will provide HUD with a modern, compliant, integrated core financial system that will summarize financial data, control funds, prepare annual financial

statements, and meet all internal and external reporting requirements. In addition, the New Core initiative aims to modernize the Department's financial systems that allow HUD to:

- Leverage a production-proven shared services currently used by other Federal customers.
- Leverage existing functionality in the integrated Federal Financial Services Platform (FFSP) solution.
- Shift the focus of the OCFO staff activities to analyzing financial assets across HUD.
- Implement system improvements in response to HUD OIG and Anti-Deficiency Act (ADA) audit findings.
- Resolve major management challenges and program deficiencies identified by the GAO, OMG, and OIG.

This initiative aims to accomplish HUD's Strategic Plan (FY14 - FY18) management objective: "increase accuracy, speed, transparency and accountability in financial management and budgeting for the agency."

5.1.3.2 *Federal Housing Administration Transformation in Mortgage Insurance Segment*

The FHA Modernization Initiative will enable HUD to detect risky loans and prevent fraud before it happens. This will reduce the number of bad loans for which HUD needs to pay insurance claims.

This initiative will enable HUD to achieve the following goals:

- Detect and prevent fraud, waste, and abuse by lenders and borrowers.
- Modernize 40-year-old FHA systems and processes.



- Manage credit risk prudently at both the portfolio and loan level.
- Respond to rapidly changing market conditions.
- Strengthen the insurance fund solvency.
- Reduce the risk of foreclosure by identifying fraud and abuse in the FHA Portfolio.

The FHA Modernization initiative will enable HUD to strengthen its risk management and fraud prevention framework to better protect its programs and insurance funds from fraudulent and abusive lending practices. It will provide HUD staff with the capability to analyze portfolio trends and patterns across the lending community, and to assist in identifying fraudulent lenders and stabilizing FHA's portfolio.

5.1.3.3 Next Generation Management System (NGMS) in Subsidies Management Segment

The Next Generation Management System (NGMS) will enhance HUD's affordable housing program management, streamline complex business processes, and integrate disparate IT systems into a common platform. Led by the Office of Public and Indian Housing (PIH), NGMS will provide a business solution to manage all facets of HUD's rental assistance programs. Ultimately, NGMS will improve how housing authorities and HUD work together in providing affordable housing programs to citizens.

The NGMS will support a network of approximately 3,100 Public Housing Agency (PHA) partners, administering more than \$20 billion in rental assistance. The vision is to integrate disparate systems to simplify and enhance the user experience from all perspectives in order

to strengthen reporting and analysis capabilities for Rental Assistance programs and allow PIH leadership to address noted performance weaknesses. NGMS incorporates the functionality of the PIH Information Center (PIC), Voucher Management System (VMS), and Enterprise Income Verification (EIV) System, and other key external systems supporting HUD's rental assistance programs. The transition to NGMS and the decommissioning of PIH legacy systems is scheduled to start in FY17. Decommissioning is predicated on the funding available to stand up new capabilities.

NGMS will build project modules across four business functions:

- HUD Operations - Creating a single point of access to data and key information to reduce HUD's administrative burden.
- Financial Management - Providing more automation to ensure better control of the budget formulation process to reduce errors in budget forecasting.
- Partner Operations - Providing HUD partners with a single point of access to data that will allow them to better serve their customers and operate more efficiently. [BXXA](#)
- Business Support - Expanding the access and use of the NGMS to the HUD enterprise level.

5.1.3.4 Grants Management Modernization

[CXXB](#) GM program stakeholders and subject matter experts across the Department agreed on prioritized GM improvements via the Grants Management Business Modernization Plan. While many business needs were identified, the team agreed upon the following top three (3) priorities for near-term business improvement:



- Notice of Funds Availability (NOFA) Improvement Initiative
- Analysis of Automation of Manual Processes
- Business Data Definition and Standardization

The NOFA Improvement Project will provide the following benefits:

- Shortened duration of NOFA processing to make funds available as intended.
- Consistently applied business rules to automate performance monitoring.
- Reduced administrative burden on grantees and grant applicants.

The benefits of automation for HUD program areas that are still conducting manual processing are as follows:

- Reduced staff requirements to perform manual data entries and error corrections.
- Leveraged legacy systems for HUD-wide sharing, maximizing return on investments.
- More expedient delivery of customer services through online access of information.
- Improved data quality with electronic transfer of data for automated processing.
- Enhanced risk assessments and monitoring with automated alerts and reporting.

The benefits of data standardization and information sharing are as follows:

- Effective and timely program reporting through self-service data access.
- Enhanced data accountability and transparency of GM Inventory of Data Assets.

- Data managed as a valuable departmental asset used for decision making.
- Reduced costs through reuse of data, with less redundancies and duplications.
- Improved data quality through data governance and data stewardship.
- Implementation of Open Data Strategy complying with OMB mandate.

5.2 ASSESSMENT, STRATEGIES, AND PERFORMANCE INITIATIVES (ASAP)

In June 2014, Mr. Rafael Diaz was appointed to the position of HUD CIO. During his onboarding process, he met with key Departmental stakeholders to get feedback on their assessment of the HUD IT Program. As a result, HUD OCIO has announced several strategic initiatives under a common framework known as HUD Organizational Assessment, Strategies, and Performance (ASaP). The following describes the key ASaP initiatives:

5.2.1 IT SERVICE MANAGEMENT

In support of the maturation of the IT management practice within HUD, the IT Service Management initiative will develop products and process improvements for IT project management and customer coordination including Service Catalog, Integrated Governance, Standard Operating Procedures, Service Level Agreements, Service Communications Plan, and Service Utilization Coaching Program.

HUD plans to implement industry best practices on Information Technology Service Management (ITSM) or IT services for its IT Infrastructure Modernization effort. ITSM is a discipline for managing IT systems that is philosophically centered on the customer's perspective of how IT



contributes to the business. It is a process-based practice intended to align the delivery of IT services with the needs of the enterprise, emphasizing benefits to customers. ITSM involves a paradigm shift from managing IT as stacks of individual components to focusing on the delivery of end-to-end services using best practices.

BXXA

HUD plans to leverage the Information Technology Infrastructure Library (ITIL)¹⁷ as the set of best practices for ITSM that will focus on aligning IT services with the needs of business. ITIL provides standard procedures, tasks, and checklists that can be used by HUD and its vendors to establish a minimum level of competency and establish a baseline from which it can plan, implement, and measure IT infrastructure improvements.

5.2.2 HUD ENTERPRISE ARCHITECTURE TRANSFORMATION (HEAT)

HEAT is a strategic initiative to transition HUD's legacy IT infrastructure to a new state that is manageable, cost-effective, leverages strategic technology sources, and better meets the needs of HUD programs and missions. HEAT will provide an agile, responsive, transparent, effective, and efficient IT infrastructure for the Department. The desired outcome is to create a modernized technical solution that is responsive, agile, transparent, and cost-effective to deliver service to our customers.

The primary vision and objective of the HEAT program is to develop an improved IT infrastructure services framework,

using IT Service Management (ITSM) principles, that meets the current and anticipated mission needs for all of HUD's programs and stakeholders while attaining maximum flexibility and agility. HEAT's overall program objectives, developed in close consultations with key departmental and program office leaders, are:

- Acquire performance-based, flexible contracts to provide secure, highly reliable, and available IT infrastructure services that meet or exceed OCIO customer requirements and expectations.
- Continuously review, analyze, and take proactive measures to ensure that the HUD IT infrastructure stays current with technological advances in the industry, while validating that infrastructure investments are aligned with the HUD Strategic Plan, Transformation Initiatives, and HUD's mission objectives.
- Continuously monitor cost of services and customer satisfaction for services delivered throughout the life cycle of the HEAT program, as measured through third-party TCO studies.
- Establish continuous performance management monitoring and controls to provide timely, accurate, and insightful data on program status and performance reporting.
- Meet all the Federal mandates and compliance requirements regarding HUD's IT infrastructure services and operations.
- Data Center Services will provide HUD with fully managed hosting and cloud services for HUD's mission applications

¹⁷ ITIL is a registered trademark of APM Group, Ltd, UK. Refer to <http://www.itil-officialsite.com/> for further information



portfolio, enterprise applications, remote access, etc.

- End User Services will provide HUD with a fully managed local area network, end user hardware, and software support services.

The goal of the HEAT program is to provide all required personnel, management oversight, tools, processes, and other necessary resources to fully support the multi-vendor service delivery and management model. Utilizing a managed services approach, the program will provide HUD with its next-generation IT infrastructure service needs.

5.2.3 FICAM AND SECURITY CONTROLS

The Federal Identity Credential Access Management/Single Sign-On is HUD's initiative to standardize and automate the way HUD employees access the many systems within the HUD environment. Over time, many processes and systems have been built and implemented within HUD, but have not been integrated together to create a common access process.

Other projects relating to this initiative include Personnel On/Off Boarding, Application Provisioning/De-Provisioning, Privileged User Management, Self Service Password Reset (SSPR), and Auditing and Reporting Function.

Additional information on HUD's implementation of FICAM can be found later in this section.

5.2.4 CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

CRM will provide us with a "One HUD approach" to customer interaction, regardless of channels or benefit type (e.g., extranet, contact center, HUD

offices, grant, mortgage, or insurance). It will also establish a relationship between partner account and partner employee identities/credentials for secure system access management via ICAM.

The target state includes an Enterprise Customer Relationship framework across HUD to improve customer experience, focus program outreach efforts, provide better coordination and cooperation across all HUD business areas, and improve analytics/reporting. Objectives include:

- Create an improved HUD customer experience.
- View all information related to accounts ("One customer one account"), including contacts, interactions, HUD program affiliation, benefit transactions, history, and other attributes. Customer information is transformed into corporate knowledge.
- Use the "One HUD approach" to customer interaction, regardless of channels or benefit type (e.g., extranet, contact center, HUD offices, grant, mortgage, or insurance).
- Establish a relationship between partner account and partner employee identities/credentials for secure system access management via Identity, Credential and Access Management (ICAM)

5.2.5 IT WORKFORCE IMPROVEMENT STRATEGY

The IT Workforce Improvement Strategy is designed to position the OCIO workforce to deliver on the strategies, goals, and promises of the organization. The team will be looking at issues such as staff training and recognition, hiring strategies, workforce communication, and ultimately what the OCIO organization and staff need



to look like in order to support its vision and goals. The target state of this initiative will provide HUD the ability to structure, recruit, and retain a skilled and engaged workforce who enable the missions and are empowered to make things happen. Target objectives include:

- Create a hiring and training plan to address workforce gaps/needs.
- Determine the IT workforce technology needs.
- Set clear expectations rewarding innovation without punishing mistakes.
- Establish a recognition program and non-monetary incentive plan.
- Create an improved awareness of HUD IT and the OCIO.
- Improve engagement by providing increased awareness the HUD mission HUD and how IT supports the mission.

5.2.6 FIELD AND REGIONAL OFFICE STRATEGY

The Field and Regional Office Strategy is designed to identify opportunities to adopt HUD enterprise-wide initiatives and improve the delivery and consumption of IT services. Assess IT service delivery strategies, security, costs, and interfaces that ensure the adoption of enterprise-wide technologies and processes to achieve the strategic direction set by the President, the Secretary and the HUD Chief Information Officer. IT focus areas include but are not limited to:

- HEAT Field Office impact and adoption strategies
- HQ/Field Office communications/coordination strategies
- Field Office federated services adoption strategies

- Field Office budget planning and execution strategies
- Field Office awareness and consumption of HQ services

5.2.7 DIGITAL SERVICES STRATEGY

To provide world-class digital services, HUD must address both the User Portal and Partner Relationship Management challenges by providing simplified, intuitive access to services and improving business partner management capabilities. Through its Digital Services Strategy, the Department will accelerate development of an enterprise portal architecture based on a benefit-centric view of services. In addition, effective partner relationship management requires enterprise insight and control of partner/user accounts. Objectives include:

- Accelerated Enterprise Portal Architecture development
- Simplified system access for users through improved identity, credential and access management
- Customer relationship management, business process standardization, and system consolidation
- Increased data sharing
- Improved fraud and abuse detection capabilities

5.2.8 MOBILE AND WIRELESS STRATEGY

The Mobility and Wireless Technology Strategy is designed to identify the mission needs for mobile and wireless technology throughout the agency. Information collected by this team will be used to develop the OCIO technology vision to support a mobile workforce that needs to have HUD access “anywhere, anytime, on any device”. Through this initiative, HUD will develop applications



and capabilities allowing Field staff to access data and information in real time. Objectives for this initiative include:

- HUD access “anywhere, anytime, on any device”
- Wireless connectivity and mobile devices available for Region VII
- Up-to-date mobile devices for the workforce
- Better wireless capability at HQ

5.2.9 DIGITAL BRANDING

The Digital Branding Strategy is designed to identify the best channels and mechanisms to communicate IT strategic efforts. This initiative ensures good communication with OCIO staff, customers, and stakeholders and is part of IT project plans and strategies. In addition, the Digital Branding initiative works with the Office of Public Affairs to ensure that OCIO communication strategies are coordinated with agency-wide communication efforts. Digital Branding will enable OCIO to be viewed as a customer-driven organization.

5.3 DATA AND INFORMATION

5.3.1 TARGET DATA ARCHITECTURE

HUD has an evolving data architecture that will move HUD to a more mature set of data integration and data management processes. This approach promotes better return on data-related investments and minimizes the costs of information systems by enabling HUD to leverage and build upon its existing and new technology investments, and by providing centrally managed services. By providing key data services and tools in each of the Data Architecture Layers, HUD will provide efficient, understandable, and effective

ways to enable access to any critical information asset. Armed with this comprehensive and integrated set of services, HUD will be able to provide better management of its data and organize disparate data into a form that can be easily reshaped and made available to the customer, which will provide easier integration and reporting from it at the lowest possible cost.

5.3.2 TARGET VISION

Figure 5-2: HUD’s Target Data Architecture represents the current design of the HUD Target Data Architecture, which corresponds to the data services needs of HUD Program Offices and their missions.

Service areas in the Target Data Architecture that HUD is currently working on or will start work on in the near future are further explained in the following sections.

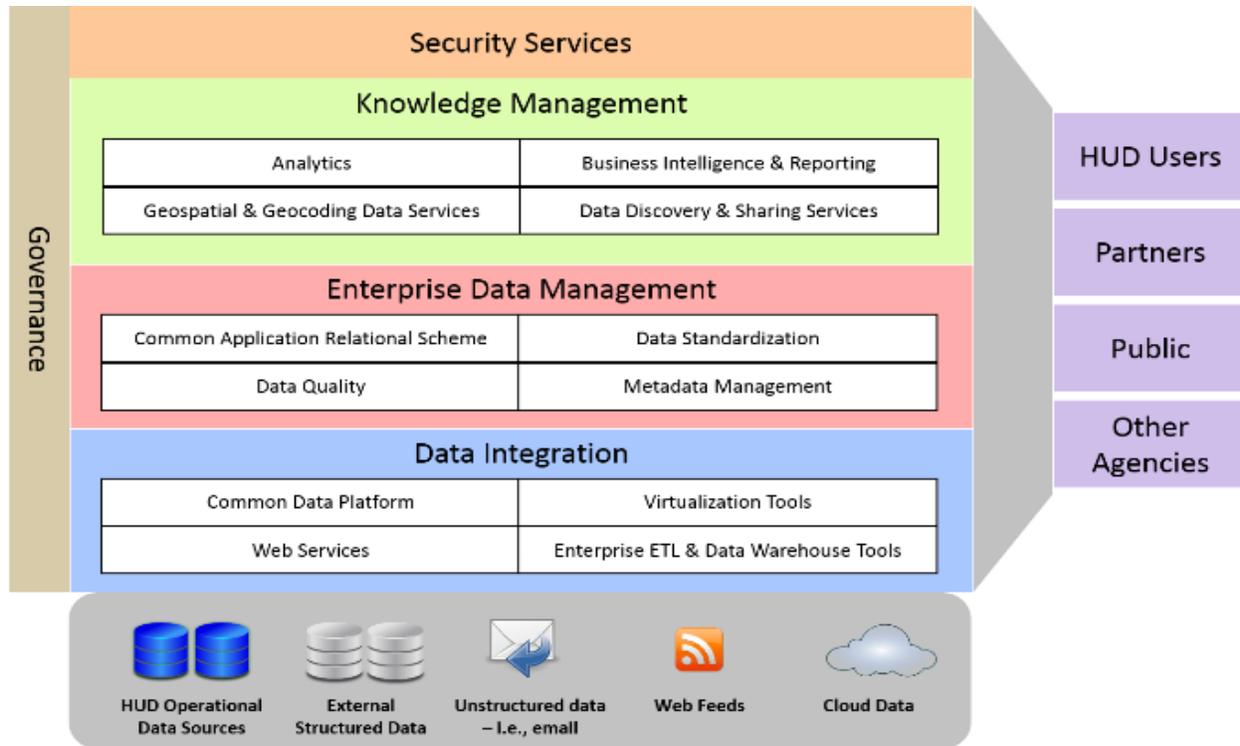


Figure 5-2: HUD's Target Data Architecture

5.3.3 TARGET CAPABILITIES AND INITIATIVES

5.3.3.1 Common Application Repository Schema (CARS)

Traditionally EA Enterprise Logical data models have been created as high-level logical data models that capture the business data and definitions but are not attributed at the level to be used by project teams. HUD is working to establish a new Enterprise data model, known as the Common Application Repository Schema (CARS) model to serve as a solution data model, one that will be leveraged through new development efforts. The CARS model is designed at a lower level of granularity, closer to the design required for developing software. This approach makes the CARS model more useful by project development teams.

The CARS effort utilizes HUD data artifacts that define the data and business rules of HUD. These artifacts include HUD User Guides, forms and corresponding instructions, data dictionaries, etc. Eventually, the CARS model will include entities, attributes and their definitions based on the authoritative sources of HUD business definitions.

The CARS methodology identifies and models the data elements that are common across the enterprise as well as the data elements unique to a business area or business function. The design approach within the CARS modeling methodology defines the entities, attributes, and relationships that:

- Ensure Data Quality - e.g., enforcing list of valid values (LOV) in the data model.
- Enforce Business Rules - designing entities



- Enforce HUD data standards - by defining the attributes using data standards for datatypes, naming standards, and abbreviations in the model.

A central purpose of a solution logical data model is to support new IT development projects.

The CARS model or a relative portion of the CARS model can be used to create the baseline data model for a project. This approach provides the following benefits:

- Reduces the time needed by the project team to establish a baseline project data model.
- Close alignment of logical and physical models
- Ensures consistent definitions of data elements across the enterprise.

In addition, to further support the development projects, the EA Data Architecture team will be embedded within critical projects to assist with the development of the project's data models. This minimizes the time required to perform data modeling tasks and ensures a consistent modeling style between the project and CARS logical models. This enriches the CARS model by allowing the EA Data Architecture team to:

- Expand the CARS model by identifying the appropriate new entities and attributes defined in the project data model to incorporate into the CARS model.
- Update the entities and attributes in the CARS model that were used to create the project's baseline data model

5.3.3.2 Data Standardization

HUD is utilizing a priority approach to conduct data standardization efforts based on the Department's major business data classifications within the CARS data modeling effort. CARS is classifying existing data into key information groups and subject areas that will allow HUD to focus its data standardization efforts where the greatest need is and where the greatest benefit will be provided. Four core businesses-related data classifications have been defined to guide these efforts. The four information classification areas are: **GXXA**

- **Place of Performance:** locations where HUD programs are conducted or where funding is being provided to support housing-related activities.
- **Financial Instruments:** grants, loans, vouchers, subsidies, mortgage insurance, or any other type of funding used by HUD to manage the transfer of funds to the public in support of its mission.
- **Beneficiaries and Partners:** People to whom HUD provides support, or with whom it works, to conduct the Department's business.
- **Performance Indicators:** any type of data that assist in the measurement of HUD progress in meeting its goals. **AXXA**

Current standardization activities are focused on the Place of Performance within the CARS 'Address' subject area, and 'Beneficiaries' and 'Partners' information groups, in the CARS 'Tenant' and 'Account' subject areas. Place of Performance activities focus on standardizing location- or address-based data to support cross-program reporting. Beneficiaries and Partners standardization efforts focus on FHA partner, rental housing tenant, and HUD grantee



information. HUDStat, the Department's performance-based reporting system, is leveraging Place of Performance data to provide HUD staff with detailed information about the performance of HUD programs in a given location. Adopting these standard data definitions will allow greater sharing and integration of HUD housing data with that of other Federal agencies. By using the CARS data model as the foundation of a HUD system's data design, this will drive greater use of data standards at HUD. Once these data models definitions are widely used, HUD will reduce the number of different ways this data is defined in a HUD Program Office's data system. In addition, CARS is building and documenting existing reference table code values, and as this is shared across the Department, it will provide a greater understanding of Program Area data and standardize shared code values across the Department.

5.3.3.3 Metadata Management

GXXA HUD completed the pilot project to provide an Enterprise Metadata Management service. When approved, this effort will utilize a central repository to capture and keep up-to-date, critical metadata about HUD systems. The modeling tool will require metadata items like data type, descriptions, and domain values to be entered during the design of the database. The tool will also enforce the use of data standards like data element naming and standardized data structures. It will require developers to submit a new or updated data model for any updates to a HUD production database.

The tool will also be able to create updated data dictionaries in the HUD standard format, and the associated

repository will allow HUD data architects to discover and reuse data for better cross-program data integration and reporting. The repository can be accessed and queried via Web interface to better understand HUD data and to locate data for integration and reporting projects.

For HUD systems that are not undergoing any new development work, the tool can reverse engineer a data model from the system's database. Existing data dictionaries can be imported into the model's metadata and will reside in the repository. As the repository is being populated, the information within it will provide HUD a detailed and accurate data inventory and would assist in identifying and reducing redundant data stores. This will allow HUD better insight into legacy systems data and will assist in planning any future modernization of the systems or migration of data to the cloud.

5.3.3.4 Enterprise Geographic Information Service (EGIS)

GXXA The Enterprise Geographic Information System (EGIS), is a shared service that provides HUD's program offices with geospatial data, services, and mapping applications to support a variety of mission needs. OCIO dedicated funding through the Transformation Initiative (TI) to establish a program to provide address validation, geocoding, and geospatial analysis capabilities as true enterprise services. PD&R is the executive sponsorship and management for this investment, which includes responsibility for the steady state operations and maintenance (O&M), as well as continued development, modernization, and enhancement (DME) of the EGIS Platform and the Geocode Service Center (GSC).

The Geospatial Coordinating Committee (GCC), consisting of stakeholders and



subject matter experts from the Department’s major program offices, provides the governance structure for EGIS. The EGIS Program operates under the direction of OMB M-10-21, “Developing Effective Place-Based Policies”, and OMB Circular A-16, “Coordination of Geographic Information and Related Spatial Data Activities”. Geospatial investment also supports HUD’s efforts to comply with White House Open Data guidance.

One part of the project plan is to create a market assessment tool or functionality that would give HUD staff the ability to layer together HUD’s, partner government agencies and third-party data to target and assess the risks and return of potential investments. For example, a market assessment capability would enable the Office of Affordable Housing Preservation to determine whether a specific property is a good candidate to preserve affordability, given local market conditions.

HUD is also looking to modernize its current geo-coding service mainframe system to one that can expand and meet a growing need to identify and verify place-based data across HUD systems. In addition, HUD has plans to use cloud-based geospatial services to better manage resources and meet peak geospatial service demands during grant application periods and disaster housing support periods without a large investment in physical resources and software.

One result of better data integration with geospatial software to provide interactive mapping applications is the new

Homelessness Analytics Initiative (HAI),¹⁸ which is a collaboration between the U.S. Department of Veterans Affairs (VA) and HUD. This application synthesizes information from an array of federal government agencies (HUD, VA, Census, Centers for Disease Control and Prevention, Department of Health and Human Services, and the Social Security Administration) and other data sources, to provide users with access to national, state, and local information about homelessness among the general population and veterans. The aim of the HAI is to empower communities, organizations, and individuals with critical information on trends in homelessness, factors related to homelessness, and services in place to prevent and intervene in situations of homelessness. The application and its data will enable HUD and the VA to plan and allocate resources, and effectively coordinate efforts to address homelessness.

5.3.4 DATA GOVERNANCE

5.3.4.1 *Data Stewards Advisory Group (DSAG)*

CXXB HUD is working on increasing the effectiveness of data governance within the Department. Currently, the DSAG provides HUD with data governance activities and oversight. There is an effort to establish a more formal governance process for data management and data standards at HUD with DSAG voting members from all key business areas at HUD setting data standards and policies.

CXXB The MDM and the Enterprise Metadata Management projects will provide HUD and the DSAG with better procedures and

¹⁸ <http://homelessnessanalytics.org/>



tools to support data governance activities. The MDM project will assist in the determination of authoritative data sources, defining standard data structure for key business data entities, and defining data quality parameters. The Enterprise Metadata Management project will define and create data development process control gates around the creation and updating of data models to ensure that key metadata is being provided, that data standards are being used, and the data being collected and managed meet the information needs of the business areas that use the systems.

5.3.4.2 *Geospatial Coordinating Committee (GCC)*

The GCC is a data governance group. Its primary roles are:

- Prioritize geospatial investments
- Serve as the HUD Geospatial point of contact for the Federal geospatial community
- Address key geospatial issues at HUD
- Build the Geographic Information Systems (GIS) Strategy and communicate it with the rest of HUD GIS stakeholders

The GCC utilizes the Geospatial Community of Practice (GeoCOP) working group to work on issues and plans about geospatial use and improvements. This group is open to any Department GIS users or mission subject matter experts.

5.3.5 FILLING THE GAPS

HUD is currently working on improving its Data Management (DM) and Governance

practices in a number of key areas including:

- **The Grant Management Modernization Plan** identified Data Standardization as a key priority. Dissimilar data and management practices can lead to delayed or improper grant funding, data inconsistencies, limited cross-grant-program reporting, and costly data quality and integration problems. The Digital Accountability and Transparency Act of 2014 (DATA Act) is requiring HUD to assist in the creation of common data elements and definitions to be used across federal grant programs and have the same meaning across the grant life cycle. This effort will improve the availability, integrity, and accessibility of program grant data. [GXXA](#)
- **HUD's geospatial project** has proposed that HUD adopt the address portion of the standard *United States Thoroughfare, Landmark, and Postal Address Data Standard*¹⁹ FGDC-STD-016-2011. This federal standard is built on multiple existing industry standards related to addresses and could resolve the multiple, non-traditional address structures that appear frequently in HUD's daily operations (e.g., landmarks, undeveloped property, Puerto Rican urbanization-based addresses, etc.). HUD is a contributing committee participant and can influence the evolution of this standard. [GXXA](#)
- **New Core Financial Services** will migrate its financial and acquisition management systems, processes, and data to a government-to-government shared standard service solution

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<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/street-address/>



provided by the U.S. Department of Treasury's Bureau of the Fiscal Service Administrative Resource Center (ARC). The New Core accounting implementation project will convert and migrate HUD data to a standard Oracle Financial data structure, a structure that more than 30 other Federal customers are using as part of the Financial Management Line of Business (FMLoB) initiative. Many of the current HUD financial systems that will be retired at the completion of this project are decades old and use non-standard database platforms. GXXA
HXXC

- **The DSAG** has been working on a project to eliminate the use of Social Security numbers (SSN) by creating a unique identifier to replace the use of SSNs, Employer Identification Numbers, and Taxpayer Identification Numbers as the primary key in HUD's systems. The Personally Identifiable Information (PII) data related to the HUD unique ID would be maintained in a single database accessible as needed to support select program operations. Eventually, HUD's systems would no longer maintain the PII data. Using this standard identifier would serve the goals of reducing personal data replication, increasing privacy protection and improving HUD's ability to report on program overlap. GXXA

5.4 SYSTEM AND APPLICATION TARGET VISION

HXXB To promote sharing and reuse, it is important that a common set of definitions are applied to all HUD's systems. This will enable the Department to properly categorize each system and identify potential duplicative systems for consolidation, as well as systems running on obsolete technologies. Other benefits include:

- Increased Department-wide collaboration
- Greater re-use of IT services and components
- Increased horizontal and vertical information sharing
- Identification of opportunities to leverage E-Gov initiatives and efforts

To promote these benefits, HUD has begun to fully implement a service-oriented architecture (SOA). Once implemented, the SOA environment will reduce the overall complexity and duplication of systems and data within the environment.

HUD's understanding of its current environment will drive the next steps to reducing and consolidating HUD's systems and applications.

5.4.1 DECOMMISSIONING HUD SYSTEMS

Inevitably, changes in business requirements and technology will necessitate the retirement of IT solutions. The purpose of the Decommission Phase is to retire the solution when operational analysis indicates that the solution no longer provides sufficient business value and/or is no longer cost effective to operate. The outcome of the Decommission Phase is the deliberate and systematic decommissioning of the solution with appropriate consideration of data archiving and security, migration of data or functionality to new solution(s), and incorporation of lessons learned over the solution's life cycle.

The Decommission Phase represents the end of the solution's life cycle. A Decommission Plan is prepared and executed to address all facets of archiving, transferring, and disposing of the solution's software and hardware



components. Particular emphasis is given to proper preservation of the data processed by the solution so that it is effectively migrated to another solution or archived in accordance with applicable records management regulations and policies for potential future access. The decommission activities are planned and executed with input from several stakeholder groups, including the solution development team, operations and maintenance, records management, legal counsel, security, enterprise architecture, and interfacing systems.

The decommissioning of outdated and redundant applications and systems within the HUD Infrastructure is critical to reducing Operations and Maintenance (O&M) costs. In order to understand how much HUD can and will save, the Total Cost of Ownership (TCO) must be derived. Quantifying the TCO for HUD systems has proven difficult in the past and, therefore, requires strategic planning and proper execution going forward. In doing so, the TCO will provide significant insight to make critical acquisition and planning decisions for a wide range of IT assets that bring significant maintenance or operating costs across a long ownership life.

5.4.2 TARGET-STATE IMPLEMENTATION

HUD is aiming to transform its core financial management processes and systems to improve financial information accuracy and better support decision making. The New Core Financial Services implementation will transition to a federally-compliant financial management shared service provider, which aligns with OMB's Shared First Strategy. Once the project has successfully implemented the shared service solution, legacy financial systems HUDCAPS and PAS will be decommissioned. HXXC

5.4.3 GOVERNANCE PROCESS

HUD is currently implementing the next iteration of the Project Planning and Management (PPM) process. This new iteration has streamlined the documentation procedure, as well as the overall process that each project goes through. As this process matures, HUD continues to align the PPM process to the Collaborative Planning Methodology.

5.5 NETWORK AND INFRASTRUCTURE

5.5.1 TARGET VISION

The future of HUD's infrastructure is one of scalability and agility to meet the ever-changing needs of the user community. To meet these needs, HUD will be building into its infrastructure a more robust and secure environment that will include implementing FICAM initiative. Building security representatives are applying FICAM to every HUD system and project.

5.5.2 SHARED SERVICES

HXXC HUD continues to expand its use of Shared Services within the Department. The following is a sample of current internal Shared Services that the Department will continue to mature and grow internally.

- Hosted Infrastructure (mainframe and virtualized hosting)
- Hosted Storage (Storage Area Network and multi-tier based)
- Cloud provided Email Services
- Shared Help Desk Services
- Identity and Access Management Services



- Video Teleconferencing Services²⁰

5.5.3 FILLING THE GAPS

HUD is taking various steps to overcome identified gaps in the following areas:

- Understand and control all layers of the infrastructure, not just the application layer
- Identify all obsolete software packages that are currently running in the environment.
- Determine the actual cost of the various IT components and services.
- Implement an SOA environment within HUD.

5.5.4 CLOUD COMPUTING SERVICES

The Department is also leveraging Cloud Computing Services for best-of-class solutions in support of the Cloud First Policy²¹ and the 25-Point Implementation Plan to Reform IT Management²².

5.5.5 TARGET FEDERAL IT REFORM ACTIVITIES

HUD has implemented various activities that will enhance HUD IT services and meet the goals of OMB's "25-Point Implementation Plan to Reform Federal IT Management"²³, including:

- Implementing Single Sign-On fully on all appropriate HUD systems.

- Reducing the number of data warehouses, which will reduce the amount of redundant data and the costs to manage the warehouses.
- Identifying and closing down redundant infrastructure.
- Establishing a scalable infrastructure to support rules engines, analytics, and reporting systems, as well as a mechanism for transferring legacy applications to the new platform. Specifically, provide standard hardware and software to support case management and migration of legacy applications for all lines of business.
- Reengineering management processes to establish a technical infrastructure that will integrate disparate systems and provide consistent information.
- Moving to a cloud-based model for a SAN storage management service.
- Transitioning email and SharePoint services for users from an environment supported by means of a traditional infrastructure requiring dedicated software, services, storage, and management components to a cloud technology solution.
- Migrating from an individual agency telecommunications agreement to a government-wide acquisition vehicle that offers higher-quality, cheaper, and more secure telecommunications services.

²⁰

<http://portal.hud.gov/hudportal/documents/huddoc?id=dataconsol.pdf>

²¹ <https://cio.gov/wp-content/uploads/downloads/2012/09/Federal-Cloud-Computing-Strategy.pdf>

²² <https://cio.gov/wp-content/uploads/downloads/2012/09/Federal-Cloud-Computing-Strategy.pdf>

²³

http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/25-point-implementation-plan-to-reform-federal-it.pdf

http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/25-point-implementation-plan-to-reform-federal-it.pdf

²³ http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/25-point-implementation-plan-to-reform-federal-it.pdf



5.6 SECURITY REFERENCE MODEL

HUD’s Enterprise Security Architecture (ESA) provides the Department’s comprehensive and rigorous security architecture framework, which is also used as the foundation for explaining how security is integrated into HUD’s Target EA. To ensure that security is properly embedded into the Target EA, HUD developed a policy-driven enterprise security framework, which defines the security components necessary to address the Department’s security needs and comply with the Federal Information Security Management Act (FISMA) of 2002. The HUD IT Security Procedures (HUD Handbook 2400.25G, April 2007) guide HUD security staff in performing their responsibilities and complying with the FISMA requirements.

HUD’s Security Architecture conforms to the FEA Security Reference Model (SRM), which is provided by OMB to create a standard taxonomy across the Federal government. The SRM categorizes the security architecture components to enable information sharing and reuse within the Department and across Federal agencies. The SRM standardizes security architecture through three areas: Purpose, Risk, and Controls. The SRM areas are divided into six subareas, as depicted in **Figure 5-3: High Level Security Reference Model Taxonomy**.

Each one of these sub-areas will be addressed at the enterprise, segment, and

system level. The SRM is used to categorize security components for each architecture layer (enterprise, segment, or system) to determine and classify the appropriate controls necessary to secure the environment.

The HUD EA Team collaborates with HUD’s IT Security Team to update the current Enterprise Security Architecture, adopt the new SRM taxonomy, and utilize the updated HUD Security Architecture to support and enable HUD’s security vision towards a more secure environment for the Department.

5.6.1 SINGLE SIGN-ON AND FICAM INITIATIVE

The Federal Government is operating in a constantly shifting threat environment - data breaches are all too common, identity theft is on the rise, and trust relationships are enforced in an inconsistent and hard-to-understand manner. The cybersecurity threat is compounded by the increasing need for improved physical security at Federal facilities and the need to support electronic business at all levels of assurance with Federal business partners. In addition, transparency in government is increasing the need to authenticate the public to enable access to Federal Web sites and applications. The Administration established the Federal Cybersecurity Initiative to address and resolve the government-wide security issues, and to make government more accessible to the

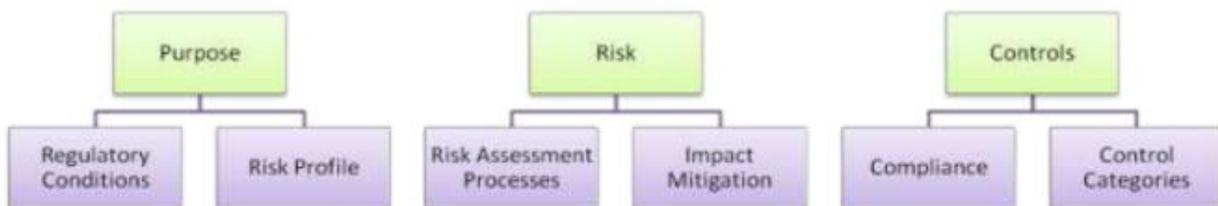


Figure 5-3: High Level Security Reference Model Taxonomy



American people, while supporting the privacy and security of information and transactions.

In support of the Federal Cybersecurity Initiative, HUD is implementing its cybersecurity initiative in collaboration with other agencies to ensure process and data standardization. The Department also adheres to the guidelines provided by the Federal CIO Council's "*Federal Identity, Credential, and Access Management (FICAM) Roadmap and Implementation Guidance*".²⁴ With cross-agency collaboration, HUD stands to gain significant benefits around security, cost, and interoperability, and contribute to the overall improvement in the delivery of services across the Federal Government.

The scope of HUD's Single Sign-On and FICAM initiative is to (1) assess HUD's ICAM environment against FICAM guidance while developing a long-range roadmap, and (2) implement a set of enterprise-wide, centralized ICAM services that will enable cost savings and ensure cost avoidance, enhance HUD's security posture, and enable compliance with HUD and Federal mandates, such as *OMB Memorandum M-11-11*.²⁵

A draft of HUD's FICAM Assessment and Roadmap document was completed in January 2013, providing a vision and guidelines of HUD's plan to achieve its target ICAM environment. It includes an outline of the complexities and interdependencies of implementing ICAM services on an enterprise-wide scale. It is currently being reviewed across the

Department by key stakeholders for understanding and buy-in.

The benefits associated with implementing HUD's cybersecurity initiative (ICAM) include:

- Increased security, which correlates directly to reduction in identity theft, data breaches, and trust violations. Specifically, ICAM closes security gaps in the areas of user identification and authentication, encryption of sensitive data, and logging and auditing.
- Improved interoperability, specifically between agencies using their PIV credential, along with other partners carrying PIV-interoperable or third-party credentials that meet the requirements of the federal trust framework.
- Enhanced customer service, facilitating secure, streamlined, and user-friendly transactions - including information sharing - translates directly into improved customer service scores, lower help desk costs, and increased consumer confidence in Department services.
- Elimination of redundancy, both through Department consolidation of processes and workflow, and the provision of government-wide services to support ICAM processes.
- Increased protection of Personally Identifiable Information (PII) by consolidating and securing identity data, which is accomplished by locating identity data, improving access controls, proliferating use of encryption, and automating provisioning processes.

²⁴ FICAM, November 2009 -

http://www.idmanagement.gov/documents/FICAM_Roadmap_Implementation_Guidance.pdf

²⁵

<http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-11.pdf>



- Compliance with laws, regulations, and standards, as well as resolution of issues highlighted in GAO reports on Department progress

5.6.2 MOBILE AND WIRELESS ADOPTION

Standardizing security requirements for mobile and wireless adoption by HUD is vital for the Department. This will include the development of mobile and wireless security reference architectures that incorporate security and privacy design, while accounting for different mission needs. The evolving enterprise wireless networks may have varying needs to support unclassified and classified high-bandwidth traffic, mission-critical wireless coverage to in-building and terrestrial environments, and data offloading. A mobile and wireless security baseline will enable the approach to the mobile and wireless security assessment, authorization, and continuous monitoring. **BXXB**

5.6.3 TRAINING AND AWARENESS

A HUD key objective for an effective Security program is to ensure that all employees and contractors understand their roles and responsibilities and are adequately trained to perform them. HUD cannot protect the confidentiality, integrity, and availability of its IT systems and the information they contain without the knowledge and active participation of its employees and contractors in the implementation of sound security principles. The following are key principles that shall be established:

- The CISO continue to maintain and implement an IT security awareness and training program in accordance with NIST 800 SP 800-50, “Building an Information Technology Security Awareness and Training Program”. The

program shall be consistent with CFR 930.301.

- Program Offices/System Owners shall establish additional system-specific security training for sensitive systems under their purview, when necessary.
- Program Offices/System Owners shall ensure that HUD personnel and contractors accessing HUD IT systems receive initial training in security awareness and accepted security practices as part of their orientation. They shall sign the rules of behavior and receive refresher training by May 31 of each year.
- Program Offices/System Owners shall ensure that HUD personnel and contractors with significant security responsibilities (e.g., ISSOs and system administrators) receive annual specialized training specific to their security responsibilities. The level of training shall be commensurate with the individual’s duties and responsibilities and promote a consistent understanding of the principles and concepts of IT system security.
- Program Offices shall maintain training records that include the individual names and positions, types of training received, and cost of training.
- Unless a waiver is granted by the CISO, user accounts and access privileges, including access to email, will be disabled for those HUD employees who have not received annual refresher training.
- Program Offices shall prepare and submit an IT Security Professional Training Plan to the CISO by September 1 of each year.

Program Offices shall prepare and submit awareness and training statistics semiannually to the CISO. These statistics shall include the (1) total number of



personnel and the total number of personnel who received awareness training, and (2) total number of IT security personnel and the total number who were trained.

6 TRANSITION TO THE TARGET STATE

6.1 TRANSITION STRATEGY

6.1.1 OVERVIEW

HUD’s Transition Strategy describes the overall plan to achieve HUD’s target state within the next 3-5 years. The transition strategy defines the dependencies among the transformation initiatives and projects. **Figure 6-1: HUD’s Transition from Current State to Target State** illustrates how the transition strategy composed of major initiatives and projects bridges the gap between HUD’s current environment to its target state.

The OCIO’s new Assessment, Strategies, and Performance (ASaP) strategic initiatives described in Section 5 of this document constitute the IT strategic framework for HUD’s modernization capabilities: AXXA

6.1.2 IMPROVING CUSTOMER SERVICE

In response to the requirements of Executive Order 13571, “Streamlining Service Delivery and Improving Customer Service”²⁶, HUD developed a Customer

Service Plan issued by former HUD Secretary Shaun Donovan in October 2011. This plan has been updated and is now called the “*Open Government and Customer Service Plan 2012-2014*”. It provides a roadmap as to how HUD and its roughly 9,600 employees will better serve its customers in order to achieve HUD’s strategic goals. It is found at <http://portal.hud.gov/hudportal/documents/huddoc?id=OpenGovPlan12.pdf>. BXXA

AXXA HUD addresses how the Department provides services in a manner that seeks to streamline service delivery and improve the experience of its customers. The term “customer” refers to any individual or to any entity, including a business, tribal, State or local government, or other agency, to which HUD directly provides significant services.

Secretary Donovan summarized HUD’s significant progress to date:

- **Engagement** - HUD unveiled a multimedia channel that allows Web site visitors easy access to informational videos and other social

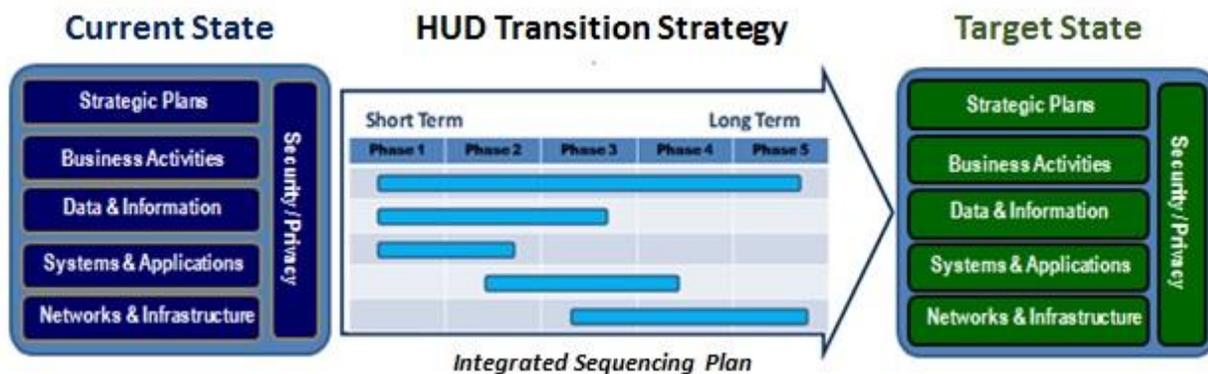


Figure 6-1: HUD’s Transition from Current State to Target State

²⁶ [http://www.whitehouse.gov/the-press-office/2011/04/27/executive-order-](http://www.whitehouse.gov/the-press-office/2011/04/27/executive-order-streamlining-service-delivery-and-improving-customer-ser)

[streamlining-service-delivery-and-improving-customer-ser](http://www.whitehouse.gov/the-press-office/2011/04/27/executive-order-streamlining-service-delivery-and-improving-customer-ser)



media sites. In addition, HUD launched HUD Ideas in Action, a crowd-sourcing tool that encourages the public to offer policy and program suggestions, which then receive comments and reviews for potential implementation. HUD also launched the HUDDle, a bilingual, bi-directional blog.

- **Transparency** - In February, HUD hosted its first-ever “Twitter Town Hall,” in which interested citizens were able to learn how a silo-busting, cross-agency priority like the “Strong Cities Strong Communities” initiative was building local capacity on the ground, in real time. In addition to this pioneering use of social media, HUD is consistently publishing “high-value” data to Data.gov (<http://www.data.gov>) based on feedback from stakeholders, and has enhanced HUD User to make data and visualization tools available to meet the unique needs of HUD stakeholders.
- **Collaboration** - HUD, in partnership with the Rockefeller Foundation, State Department, the American Planning Association, and the Government of Brazil, hosted a global collaborative competition called “Sustainable Urban Housing: Collaborating for Livable and Inclusive Cities.” The competition identified innovative solutions for providing sustainable, energy efficient housing in a way that unleashes economic opportunities for the urban poor, and builds smarter, cleaner cities around the world. And in March, HUD partnered with the Department of Veterans Affairs and the Jon Bon Jovi Soul Foundation to announce a competitive challenge for Project REACH - a new app that will allow the providers of services for homeless veterans to quickly and easily access critical information to help the people they serve. The alignment of HUD customer-facing services to support

HUD’s goals is a key factor in the development of the Plan.

To continue its progress in the coming years, HUD will deploy Geographic Information System (GIS) technology that will:

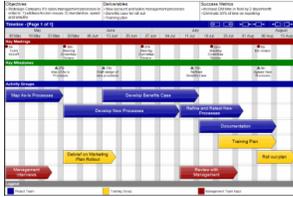
- Help HUD grantees and public housing authorities complete an Assessment of Fair Housing for their communities. Not only will this help grantees identify longstanding demographic and development challenges to fair housing in their communities, but it can also help them with new development strategies and targeted technical assistance.
- Help community development grantees make smarter, more strategic funding decisions. Under a new, reformed Consolidated Plan, recipients of Community Development Block Grant (CDBG), HOME Investment Partnerships (HOME), Emergency Solutions Grant (ESG) and Housing Opportunities for Persons with AIDS (HOPWA) funds will be able to use a mapping tool and planning template to help them assess their needs in the context of other HUD investments.

Ultimately, open government allows HUD to serve its customers better. HUD is committed not only to implementing the Open Government and Customer Service Plan, but also to using the Plan to re-engage both senior HUD leadership and frontline HUD employees - and reaffirm the central role that openness and customer service plays in helping HUD achieve its mission. BXXA



6.2 IMPLEMENTING STRATEGIC INITIATIVES

6.2.1 INTEGRATED SEQUENCING PLAN



The HUD Integrated Sequencing Plan (ISP) provides multiple graphical views of HUD's IT

assets, depicting HUD's systems, applications, and current and proposed projects. This enables HUD to better manage project team workloads, identify redundancies, and plan IT budgets. These IT projects include the implementation of IT shared services and cloud computing services that will move HUD toward improved operational efficiency and greater cost savings.

The approved HUD major IT initiatives and projects are identified and described in the ISP that is continually updated by the OCIO's project management office. Within the ISP, IT projects are grouped by segment (i.e., HUD's major business functions), investment, and system or service. Having a comprehensive view of HUD's IT investments presented in the ISP helps identify possible redundancies in capabilities across the segments, and the Department as a whole. The EA team maintains a central repository that the mapping of IT Goals and Objectives related to major IT initiatives. The repository also maintains the mappings between IT Projects that align to, and support HUD's strategic goals. [AXXA](#)

6.2.2 ROADMAP AUTHORITATIVE SOURCES

Authoritative sources ensure information accuracy and relevancy during Roadmap

development and updates. These authoritative sources include:

- HUD's Strategic Plan FY2014 - FY2018, IRM Strategic Plan FY2014 - FY2018, and Annual Performance Plan FY2015 and Performance Report FY2013. [AXXA](#)
- Information Collection Templates (ICTs) and Exhibit 300s submitted to the ITIM team to justify proposed IT investments. These documents are used in the annual IT budget formulation process.
- IT Expenditure Plans that explain what IT investments HUD propose to undertake towards modernization, submitted to Congress and OMB to explain compliance with regulations.
- EA architecture artifacts composed of strategic objectives, business functions, data and information, applications, IT infrastructure, and security controls, aligned and guided by the FEA.
- Documentation from ongoing collaboration and communication with HUD's leadership, managers, business and technical stakeholders, and Federal oversight authorities (OMB, GAO, OIG). [CXXB](#)

6.2.3 MAJOR INITIATIVES TO SUPPORT TRANSITION

Grouped by business segment, the list below describes the major IT initiatives that have been proposed, funded and/or are currently underway to transition HUD toward its desired state. These projects are reported in HUD's IT Expenditure Plan, submitted to Congress and OMB, to explain regulatory compliance. These projects are also included in the Integrated Sequencing Plan (ISP) to show milestones, timelines, and interdependencies with other projects



within a five-year period. It is updated by the OCIO PMO team.

6.2.3.1 *Business Analytical Services*

6.2.3.1.1 Enterprise Geographic Information System (EGIS)

The Enterprise Geographic Information System (EGIS) is a shared service that provides HUD's program offices with geospatial data, services, and mapping applications to support a variety of mission needs. The Office of the Chief Information Officer (OCIO) dedicated funding through the Transformation Initiative (TI) fund to establish a program to provide address validation, geocoding and geospatial analysis capabilities as true enterprise services. HUD's Office of Policy Development and Research (PD&R) is the executive sponsor for this investment, which includes responsibility for continued development, modernization, and enhancement (DME) and steady state operations and maintenance (O&M) of the EGIS Platform and the Geocode Service Center (GSC). When successfully completed, this project will provide the program offices with geospatial capabilities and applications to shape place-based policy initiatives and measure outcomes, support cross-program collaboration, and enable HUD grantees to satisfy reporting needs and better target resources.

6.2.3.1.2 Affirmatively Furthering Fair Housing (AFFH) User Interface Tool

The Affirmatively Furthering Fair Housing (AFFH) initiative will provide grantees with a submission interface for digital filings of their Assessments of Fair Housing (AFHs). The system will include an online AFFH User Interface tool; an interface with the AFFH geospatial mapping data tool; and connection to a database. A

Web-based tool will make it easier for program participants to submit AFFH-required files electronically, with data and maps integrated into the analysis. Digital files will make HUD's submission review more efficient and timely, allowing for instantaneous access by the appropriate staff. With a uniform submission template and database tool, HUD's review time will be decreased.

6.2.3.2 *Controls and Oversight*

6.2.3.2.1 Earned Income Verification (EIV)

This project will evolve a more mature and robust reporting EIV system with the additional functionality of the Management Case Assignment & Tracking (MCAT) module. This identifies cases requiring Public Housing Agency (PHA) follow-up and case review by HUD staff to confirm that no improper payments have been made or to identify tenant cases that have outstanding deficiencies. In addition, utilizing the full capability of MicroStrategy for reporting will enable interfaces on internal and external networks with recent enhancements such as administration workflow, system manager, advance mapping capabilities, better data input control from different sources, and Web and mobile functionality. Dashboards and reports in the form of Software-as-a-Service would be available with extensive datasets for detailed analysis or ad hoc reports.

6.2.3.2.2 NASS Modernization

The iNtegrated Assessment Sub-System (NASS) interfaces with other HUD systems (e.g., PASS, MASS, FASS-PH) to produce composite data about PHA management performance. HUD measures the PHA's physical condition, financial condition, quality compliance from the perspective of financial and regulatory requirements,



and management operations. This enables HUD to ensure that federally assisted housing units are available and accessible to qualified citizens.

HUD personnel have been using software applications in addition and separate from NASS to meet their responsibilities and fulfill the agency's mission, and comply with new laws and regulations. These additional applications (off-line tools) represent a security risk. The NASS Modernization project will integrate the functionality of the off-line tools into the NASS Integrated Secured System to eliminate security risks, enhance the accuracy of PHA scores, and reduce costs. This effort also includes a creation of a data transformation interface.

6.2.3.3 Customer Relationship Management

The Location Affordability Portal (LAP) provides consumers, educators, counselors, and policy-makers with more accurate data about the combined cost of housing and transportation down to the census block group level. This data can be used to inform and/or drive aspects of housing counseling programs, policy making, education, and investment planning that focus on improving the overall quality of life for beneficiaries of HUD services and programs. Additionally, the LAP may be used as a consumer education resource.

6.2.3.4 Financial Management Segment

The New Core Program supports the integration activities associated with the modernization of HUD's core financial and key administrative systems in order to improve the stability and efficiency of HUD's financial management operations, reduce the risks posed by legacy systems that are no longer supported by the

vendor, and address material audit weaknesses cited by HUD's Office of the Inspector General (OIG) and the Government Accountability Office (GAO). In accordance with OMB-13-08, HUD has chosen a Federal Shared Service Provider (FSSP) to modernize its financial application portfolio - the Department of Treasury Bureau of Fiscal Service's Administrative Resource Center (ARC) financial services. The ARC will provide the most value to HUD by leveraging modern technologies while reducing implementation risks.

New Core plans to decommission the Line of Credit Control System (LOCCS), Facilities Integrated Resource Management System (FIRMS), and Budget Formulation (EZBudget) systems incrementally as the New Core capabilities are deployed.

6.2.3.5 Grants Management

The management of HUD grants is an essential component to carrying out the HUD mission. Annually, the Office of Community Planning and Development (CPD) administers \$5-6 billion in formula, competitive, and block grants for homeless assistance, disaster recovery, affordable housing, and development projects in neighborhoods and communities across the nation. The HEARTH/eGrants Initiative continues to improve the systems that automate grants programs through reengineering, modernization, and new business capabilities. These projects are continuations of prior efforts.

6.2.3.5.1 ESNAPS Modifications to Conduct HEARTH/CoC Competitions

In order to conduct the FY 2015 Continuum of Care (CoC) annual competition for Homeless Assistance



grants using Electronic Special Needs Assistance Program System (ESNAPS), HUD will modify the system to (1) implement a “bring forward” capability to streamline renewal grant applicants (85% of applicants); and (2) apply changes to the competition dictated by the Notification of Funding Availability (NOFA) and program regulations for the FY 2015 competition. Each year, the NOFA typically contains changes to program regulations. This requires HUD to close the functional gap between system rules, screens, functions, and any new regulations in the NOFA.

6.2.3.5.2 ReEngineer IDIS to Remove Account Best Practices of First-In-First-Out (FIFO)

The Integrated Disbursement Information System (IDIS) will be reengineered to enforce commitment and disbursement of program funds to specific grant year, beginning with the FY 2015 program year, in accordance with Generally Accepted Accounting Principles (GAAP) (elimination of the FIFO basis). It will also support the continued functionality of IDIS Online to automate grants management for CPD, including revision of all processing and system rules to support the new method of commitments and disbursements (i.e., program income, other receipt funds, and activities spanning multiple grant-years). This is a Departmental priority, addressing part of the Qualified Financial Statement audit findings and recommendations.

HUD OIG Audit finding 2004-FW-0001 stated CPD must improve management controls over grantee monitoring. In response, CPD developed the Grants Management Process (GMP) system to automate grantee risk analysis and monitoring processes. GMP is aligned with GAO’s internal control standards for the

federal government as they pertain to monitoring. GMP standardizes the framework for performing risk analysis, monitoring strategies, and onsite monitoring sessions to ensure reliable and accurate results between grantees, programs, and across Field Offices.

HUD uses GMP to monitor and report on 1,207 grantees and 3,727 grants for formula programs; monitor and report on 3,238 grants and 12,363 grantees for competitive program; and oversee billions of dollars in grants per year. GMP automates key grants management functions for Community Development Block Grants (CDBG), Disaster Recovery grants, HOME Investment Partnerships (HOME) grants, Housing Opportunities for Persons with AIDS (HOPWA) grants, Neighborhood Stabilization Programs (NSP), Emergency Solutions Grants (ESG), and HEARTH competitive grants for homeless assistance. This DME activity is part of an overall effort to modernize and decommission the GMP legacy system (GMP-L) which is operating on an obsolete (PowerBuilder) platform.

6.2.3.6 Information Technology Segment

6.2.3.6.1 HUD Enterprise Architecture Transformation (HEAT)

This project will provide a new infrastructure environment and allow HUD to address the changes in technology since the current environment was contracted and awarded over 10 years ago. HUD is in the process of extending the current contracts for two years to maintain infrastructure support while it continues to pursue a new contract.

This initiative includes several components: Transport, Systems Engineering, Automated Monitoring and Management, Email-to-Cloud, Data



Center, and End User. Mobile and Web technology advancements, as well as the introduction of cloud computing, have opened opportunities. The modernized IT will provide a cost effective infrastructure that meets the evolving mission needs of HUD's programs with maximum effectiveness, efficiency flexibility, agility, and transparency.

6.2.3.6.2 Email-to-Cloud Initiative

The Email-to-Cloud initiative is a modernization effort that will take advantage of Software as a Service. HUD will be moving from an on premise solution for email that is currently operated by one of the HITS vendors, to a cloud-based solution. This solution leverages technology to extend the services that HUD users routinely use to conduct HUD's business and enable them to deliver HUD's mission most efficiently by being able to: collaborate in real time; create a virtual office where they can work with information securely while on the go; use PC, browser, or phone interchangeably; keep information secure and hardware costs down; and use multiple devices to access and work with files.

The Email-to-Cloud delivers other capabilities of a cloud-based service in addition to allowing access to email, calendar, contacts, and tasks across PCs, the Web, and mobile devices. They are: an enterprise grade SharePoint Online solution for creating sites to share information; next generation cloud communications service that connects people in new ways, anytime, from virtually anywhere; instant messaging, audio/video calling and a rich online meeting experience including PC-audio, video and Web conferencing; and a professional library to house proprietary

and confidential files, with organization defined access structures as in eDiscovery capabilities.

6.2.3.6.3 Web Access Security System (WASS) Improvement Initiative

The Web Access Security System (WASS) is a mission-critical system that provides a common framework for administering application-level security for more than 35 HUD systems. WASS is a Web-based security module that provides secure access to many applications, enforcing all Federal standard security controls, as defined by IT Security. The systems within the infrastructure use WASS data for internal/external user authentication and accurate assignment of roles and actions.

To improve the tasks associated with daily user administration and system operations, this project will enable HUD customers and business partners to gain secure access to HUD systems. WASS supports over 80,000 external users and more that 4,000 internal users with application-level security in terms of application access and system administration. This project will allow WASS to stay compliant with HUD's Enterprise Architecture and Security standards, as well as satisfy evolving functional and technical architecture transformation directives.

6.2.3.7 Mortgage Insurance Segment

The Federal Housing Administration (FHA) is the largest insurer of mortgages in the world, insuring more than 40 million single-family mortgages since 1934. FHA's endorsement volume represents over 20 percent of the market for single-family mortgage originations and over 40 percent of mortgages for first-time homebuyers. The volume of FHA's single-family loan insurance portfolio has a significant



impact on our nation's housing market and homeownership overall. As the country recovers from the recent housing market crisis, HUD's top priority is to resolve and mitigate major economic risks to protect our country and citizens from similar catastrophic events.

The FHA Modernization Initiative aims to improve HUD's overall mortgage insurance business to achieve its mission to strengthen our nation's housing market, bolster the economy, and protect consumers. Combined with the best of breed Commercial-Off-the-Shelf (COTS) solutions and third-party services, the FHA Modernization Initiative will develop and implement effective tools and efficient business systems that will improve the management and monitoring of FHA insurance programs and financial services operations.

6.2.3.7.1 Access to Credit (ATC) Initiative

While the mortgage market has slowly recovered from the housing market collapse, the turnaround has been very uneven. While borrowers with perfect credit and high incomes are able to easily access the mortgage market, millions of borrowers who have impaired credit, and minorities and low-income borrowers have been effectively shut out of the market. There are a number of drivers for the uneven recovery, but the biggest driver is what the industry labels "credit overlays". Credit overlays occur when lenders use more strict requirements than those that are in FHA's guidelines.

With help from the White House, HUD has been working with external partners and stakeholders to develop the appropriate solutions that will help clarify guidelines, making it more attractive to lend to Americans who are currently being left out of the market. The solutions include:

Loan Quality Assessment, Supplemental Performance Metric, FHA Handbook, and Housing Counseling. These initiatives are being closely monitored and tracked by the President, OMB, NEC, Treasury and SOHUD. Using a phased approach, the following are projects considered for implementation:

- **Supplemental Performance Metrics/ Blueprint for Access** - will provide FHA with more detailed insight into lender performance and lending activity on underserved borrowers.
- **Handbook Implementation (Phase 1)** - will establish a single authoritative rule-set which currently spans multiple IT systems. Ultimately, this will allow lenders to more easily quantify the risk of extending credit to borrowers.
- **Handbook Implementation (Phase 2)** - will include enhancements to existing systems to implement a reconciled set of guidelines for all aspects of FHA's single-family programs. It will establish a single authoritative rule-set which currently spans multiple IT systems.

6.2.3.7.2 Loan Review System (LRS)

The Loan Review System (LRS) will deliver improved detection of previously-approved lenders that become high risk by providing additional information to a more robust risk scoring framework based on authoritative data sources that includes portfolio performance and more focused financial health assessments. It also reduces latency between questionable action and enforcement referral based on improved detection mechanisms, increased availability to accurate case information, and lender violation statistics.

LRS also delivers improved lender risk detection mechanisms that accelerate the



frequency of event-driven analysis to improve FHA's ability to oversee lenders, and detect and prevent financial risk and fraud at the lender level. Other key aspects of LRS are performance tools that improve upon targeted secondary review selection criteria, automated updating of early payment default data, and reduction (and eventual elimination) of non-electronic case binders resulting in increased ability to detect financial risk and fraud at the loan level. The Loan Review will ultimately lead to the retirement of the Underwriter Review System (URS) legacy system as well as ARRTS.

6.2.3.7.3 iREMS System Modification for Multi-Family Realignment

The Integrated Real Estate Management System (iREMS) is the project/property management system utilized by both Multifamily Housing (MFH) and the Department Enforcement Center (DEC). iREMS maintains a repository of data pertaining to MFH's inventory of insured and assisted properties and centralizes information elements and functions required to manage, monitor, and service HUD properties.

This project would add additional tracking information to allow field asset managers to evaluate property risk and track follow-up actions when necessary. This effort supports the Multifamily Housing HUBs/Satellite Offices under the realignment effort.

Changes are needed within iREMS to accommodate the job sharing/realignment effort put forth by the Office of Housing to allow more consistent, efficient loan processing loans and existing asset services. Combined with operational improvements in line with industry standards, these changes will help ensure

continued high-quality work that creates and protects affordable rental housing opportunities. Currently, this work is done manually. Automation would ensure efficiency and effective data analysis.

6.2.3.7.4 Integrated Budget Forecasting Model (iBFM) Enhancements

The objectives of the Integrated Budget Forecasting Model (iBFM) are to allow accurate current and future budget forecasting needs of the contracts in HUDs Project Based Rental Assistance (PBRA) Section Program, Project Rental Assistance Contract (PRAC) Program, Project Assistance Contract (PAC) Program and Contract Administrators Program, and to manage the current-year funding of contracts administered under these programs.

Implementation of the iBFM - Calendar Year Funding Transition project will enable HUD to introduce more stability and efficiency in the Project Based Rental Assistance program. The move from fiscal year funding to a new calendar year funding cycle will minimize end-of-year budget disruption and result in more predictable funding cycles in future years. This project will improve funding duration accuracy and improve appropriation utilization. Not moving forward with this project will prohibit iBFM from providing users the functionality needed to support the Department's program change to calendar year funding.

6.2.3.8 Regulatory, Legislative, and Enforcement Segment

6.2.3.8.1 E-Discovery Management Initiative

The E-Discovery Management Initiative will address the need for additional storage space and software licenses in response to e-discovery preservation and



production requirements across all of HUD - at Headquarters, Regional, and Field offices. Most notably, the Office of the General Counsel (OGC) Office of Program Enforcement (OPE) is involved in ongoing litigation with several institutions for conduct dating back as early as 2001. OPE is working with the Department of Justice (DOJ) Civil Frauds Division and HUD-OIG on the Big Lender Initiative, which involves investigations into FHA loan origination and underwriting by twenty of the largest FHA-approved lenders.

6.2.3.8.2 HUD Enforcement Management System

HUD Enforcement Management System (HEMS) will support the investigation of complaints or issues by the Office of Fair Housing and Equal Opportunity (FHEO), the Office of General Counsel's (OGC) Department Enforcement Center, the Office of Lead Hazard Control and Healthy Homes (OLHCHH), and the Office of Field Policy Management (OFPM). HEMS will consolidate the functionality in the following systems:

- FHEO Title Eight Automated Paperless Office Tracking System (TEAPOTS),
- OGC Enforcement Center Information System (ECIS),
- OGC Departmental Enforcement Center Management System (DECMS),
- OGC Enforcement Center Program Compliance Information System (ECPCIS),
- OLHCHH Lead Enforcement Tracking System (LETS), and
- FPM Davis Bacon Labor Relations system (LR 2000).

The complaints and issues that are tracked in HEMS will be processed under a variety of enforcement and compliance schemes

stemming from various statutory and regulatory authorities, including the Fair Housing Act, other civil rights authorities, HUD's program regulations, government-wide suspension and debarment authorities, lead-based paint enforcement authorities, and the Davis-Bacon Act. However, these enforcement and compliance schemes include several common basic components, including intake, investigation, settlement or enforcement, and remedy.

6.2.3.9 Subsidies Management Segment

6.2.3.9.1 Next Generation Management System (NGMS)

The NGMS Initiative will provide a business solution to manage all facets of HUD's rental assistance programs. Ultimately, NGMS will improve how housing authorities and HUD work together in providing affordable housing programs to citizens. The goal is to integrate disparate systems to simplify and enhance the user experience from all perspectives in order to strengthen reporting and analysis capabilities for Rental Assistance programs and allow PIH leadership to address noted performance weaknesses. The new system will support approximately 3,100 Public Housing Agency (PHA) partners, administering over \$20 billion in rental assistance. It will incorporate the functionality of the PIH Information Center (PIC), Voucher Management System (VMS), and Enterprise Income Verification (EIV) System, and other HUD rental assistance programs.

6.2.3.9.2 Budget Formulation and Forecasting (BFF)

This project will give HUD the ability to determine the annual budget request with greater accuracy based on each PHA's capital fund grant, and by tracking units



removed from inventory through (Rental Assistance Demonstrations (RAD) to project out-year budget impacts. Currently, the BFF process for the Public Housing Capital Fund Program mirrors the Public Housing Choice Voucher program: sophisticated Excel and Access tools, and no IT System. This capability will enable PIH to better prepare its annual budget request based on each PHA's formula-calculated capital fund grant, track units removed from inventory through RAD, and forecast out-year budget impacts.

6.2.3.9.3 BFF Operating Fund

This module will eliminate HUD's need for a vendor to process more than 7,000 operating subsidy applications for over \$4 billion in formula grants distributed to PHAs. Every year, HUD outsources the processing of the Public Housing Operating Fund Formula through a business support contract. While PIH owns the data resulting from the process, they do not own the system. This investment will develop a system that will allow HUD to bring the operating fund formula processing in-house (an inherently governmental function) and eliminate the business support contract which will lead to a cost avoidance of \$1.3 million. Additionally, the module provides HUD the ability to determine the annual budget request with greater accuracy based on each PHA's operating fund grant, and by tracking units removed from inventory through RAD to project out-year budget impacts.

6.2.3.9.4 Cash Management

The Cash Management Project aims to aid in the process of advancing PHAs' funding based upon actual needs at any given time, and to decrease overfunding errors by giving HUD the ability to perform budget reconciliation on a monthly basis

(at a minimum). Additionally, this project will provide HUD with ad-hoc analysis and reporting capabilities to enhance financial integrity controls. The implementation of Cash Management ensures a repeatable cash management process for the Housing Choice Voucher program done by automation, rather than through the current manual process. It allows Housing Assistance Payments (HAP) to be calculated using 50058 data and additional data elements collected from a PHA. The functionality will allow for tenant-level payment calculations, as opposed to the current method of PHA summary-level calculations. It is the first step to a system solution for complying with Federal Cash Management requirements. The next step is the requirements validation for interfacing with the Program's financial system to ensure accurate calculations, reconciliations and disbursements, and upload/interface with the Department's General Ledger.

6.2.4 IT BUSINESS CASES (E300s) SUBMITTED FOR BY2016

Table 6-1 below shows a summary of the IT Business Cases (also known as Exhibit 300s) submitted to OMB for BY2016 funding consideration. They are submitted for each IT investment group by segment.



Table 6-1: IT Business Cases (E300s) Submitted for BY2016

HUD Segment	Investment Name	Investment Description
Controls and Oversight	Controls and Oversight UID 025-000004360	<p>Supports the automation of the program areas within the Office of Public and Indian Housing, Office of Multifamily and Office of Fair Housing and Equal Opportunity in meeting their legislative mandates:</p> <ul style="list-style-type: none"> • 24 CFR Part 902 PUBLIC HOUSING ASSESSMENT SYSTEM • 24 CFR 5.233 Mandated use of HUD's Enterprise Income Verification (EIV) System • 24 CFR 965.601 Physical condition standards; physical inspection requirements • 24 CFR Part 200 Subpart P Physical Condition of Multifamily Properties • 24 CFR Part 135 ECONOMIC OPPORTUNITIES FOR LOW- AND VERY LOW-INCOME PERSONS • 24 CFR 85.35 Sub-awards to debarred and suspended parties.
Financial Management	New Core Financial Services UID 025-000004370	<p>The New Core Program is a multi-phase effort to consolidate and modernize HUD's core financials and administrative systems by transitioning to shared services.</p> <p>It will implement a shared services solution for managerial cost accounting and budget formulation, replace HUD's fixed assets system and Line of Credit Control System (LOCCS), and migrate the Federal Housing Administration Subsidiary Ledger (FHASL) and GNMA Financial Accounting System (GFAS) to shared services.</p> <p>New Core is a HUD top initiative governed by the CIO as Executive Sponsor and CFO as business owner. Stakeholders include all HUD personnel involved in budgeting, accounting, finance, reporting, travel and relocation, time and attendance, and procurement functions.</p> <p>Externally, New Core will help HUD reduce the risk of legacy system failure on the delivery of all payments to customers.</p>
Grants Management	Grants Management UID 025-000004480	<p>This investment provides Shared Services and automated systems to manage the grants life cycle (pre-award, award, post-award stages) for formula and competitive programs across HUD totaling over \$7B annually. The investment goal</p>



HUD Segment	Investment Name	Investment Description
		<p>is to simplify, streamline, and integrate administrative, financial, and performance data for operating grant programs, with benefits and cost savings to governments, grantees, and the public. This is achieved through automating business processes, eliminating paperwork, reducing administrative burden, and improving data. This improves program results and outcomes for citizens by supporting grantee capacity to execute mission.</p> <p>As jurisdictions, non-profits, and citizens struggle to recover from economic recession, HUD's housing, community development, disaster recovery, and homeless programs are more important than ever. HUD's grantees are direct agents for improving high-poverty neighborhoods, creating affordable housing, generating jobs and providing targeted services to low-income families, the homeless, HIV/AIDS patients, the unemployed, and those suffering foreclosure. This investment automates grants management, program compliance, and financial control processes for these programs, re-directing resources from paperwork and towards direct service.</p>
Information Technology	Infrastructure and System Monitoring Support UID 025-000004540	<p>HUD's infrastructure investment provides consolidated hosting, storage, data transport, user environments and systems integration, with off-site disaster recovery services. It also provides continuous monitoring for ever-increasing security demands; expanding FISMA and HSPD-12, Cyber Security, and Portfolio Stat priorities, and increased complexity response support for HUD. This investment includes the support for enterprise-wide infrastructure services for HUD (HQ and 66 field offices; 13,000 workstations) and threats faced by all financial institutions with privacy data. It also supports the Assistive Technology program that fulfills HUD's disabled employees' special IT accommodations requirements, as well as Infrastructure IV&V, which ensures HUD is receiving requested service within costs and at the established performance levels.</p>



HUD Segment	Investment Name	Investment Description
		<p>HUD’s strategy for achieving increased transparency, reduced cost for increased, elastic capacity and improved efficiencies is the HUD Enterprise and Architecture Transformation (HEAT) initiative that updates the previous HUDNET initiative. This program is evaluating HUD’s ability to utilize the public cloud computing business model for data center hosting and storage, email, and desktop virtualization. Based on best practices, HUD anticipates implementing a hybrid infrastructure approach that will include private, government and public shared cloud services; using the FedRAMP cloud solutions to realize the benefit from the unified security baseline, reduce time and cost associated with the A&A process and the federated approach to improved security. OCIO also seeks to further mobilize its workforce and reduce the number of devices.</p>
Mortgage Insurance	<p>Homeownership Finances UID 025-000004490</p>	<p>The Homeownership Finances investment sustains technical support for continued operation of 10 systems that execute financial operations for FHA mortgage insurance programs. The systems in this investment maintain FHA’s insurance-in-force portfolio records and execute all accounting, payment, and collection transactions for insurance premium billing and collection, insurance claims, and property management acquisition, maintenance, and disposition. The systems perform FHA’s funds control functions and produce the quarterly and annual financial statements for the FHA insurance funds required by statute, including compliance with Credit Reform accounting. The Homeownership Finances investment supports FHA mortgage insurance programs, including traditional single-family forward mortgages, single-family reverse mortgages for the elderly, loan insurance for manufactured housing and home improvements, multifamily mortgage insurance, and insurance for health care facilities.</p>
	<p>Mortgage Insurance Risk Management UID 025-000004570</p>	<p>The Mortgage Insurance Risk Management investment sustains technical support for continued operation of 17 FHA systems and</p>



HUD Segment	Investment Name	Investment Description
		<p>invests in development of new risk management capabilities in mortgage insurance underwriting, lender certification, and borrower counseling. This investment executes the FHA program operations that control risk to the FHA insurance funds: the evaluation of sources of risks in the insured loan portfolio, the qualification, recertification, monitoring, and management of FHA lenders; the underwriting and endorsement (or rejection) of applications for FHA mortgage insurance; and counseling for prospective mortgage borrowers.</p> <p>The investment serves 7.8 million single-family homeowners; 600,000 elderly homeowners with reverse mortgages; 41,000 manufactured housing and home improvement borrowers; 13,000 multifamily property owners providing housing for 1.3 million low-income families; 3,000 nursing homes and assisted living facilities, and 100 hospitals.</p> <p>The requested DME will expand FHA's risk management capabilities to minimize claims paid from FHA insurance funds while transforming outdated business processes. This will be accomplished by developing a case management system capable of managing transactions from initial application (TOTAL scoring process) through the endorsement process and the complimentary quality control and compliance processes. By having a complete end-to-end system, efficiencies will be gained by use of electronic data shared between systems and business processes and the use of tools, data, and rules that allow for the earliest possible risk detection and remedy.</p>
Subsidies Management	Next Generation Management System UID 025-000004580	<p>The Next Generation Management System (NGMS) is a business-driven investment aiming to enhance HUD's affordable housing (AH) program management, improve end user satisfaction, streamline complex business processes, and integrate disparate Information Technology (IT) systems into a common, modernized platform. These goals will improve the agency's ability to accurately quantify budgetary data resources,</p>



HUD Segment	Investment Name	Investment Description
		<p>measure program effectiveness, and justify the agency's budget formulations and requests. With accurate financial data and automated processes, HUD personnel will be able to reduce improper payment errors by identifying operating costs, reserves, and subsidy payment anomalies. Once implemented, NGMS will provide staff with a new set of monitoring, oversight, and analysis tools to ensure that allocated federal funds are used efficiently to assist affordable housing participants.</p> <p>NGMS will build modules across four dimensions:</p> <ul style="list-style-type: none"> (1) HUD Operations - creating a single point of access to data and key information to reduce HUD's administrative burden; (2) Financial management - developing an automated and more accurate process of budget formulation based on real-time data to reduce errors in budget forecasting; (3) Partner Operations - providing HUD partners with a single point of access to data that will allow them to better serve their customers and operate more efficiently; and (4) Business support - expanding the access and use of NGMS IT advancements to HUD enterprise level.
	<p>Housing Assistance UID 025-000004500</p>	<p>This investment automates the support of the program areas in meeting their legislative mandates:</p> <ul style="list-style-type: none"> • 24 CFR Part 902 - Public Housing Assessment System • 24 CFR Part 905 - The Public Housing Capital Fund Program • OIG Audit Report Number: 2014-FO-0004 • Rental Assistance Demonstration • Federal Rental Alignment Administrative Proposals • Tackling Veteran Homelessness • Residential vacancy rates in hardest-hit areas, Low Income Housing Tax Credit to ensure HUD will meet Congressional mandate, Housing and Economic Recovery Act (HERA) of 2008, to collect tenant and property data for the Low Income Tax Credit program.

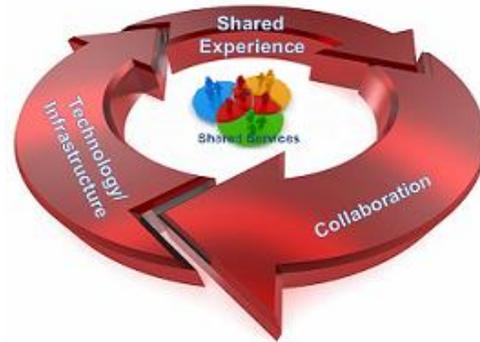


6.3 COMPLYING WITH FEDERAL IT REFORMS

6.3.1 PORTFOLIOSTAT

The Administration's Campaign to cut waste directed agencies to seek opportunities to shift to commodity IT; leverage technology, procurement, and best practices across government; and build on existing investments.²⁷ PortfolioStat (also called PfStat) supports the implementation of the Shared First initiative and the requirements set forth in Executive Order 13589, "Promoting Efficient Spending", which targets employee IT devices as a primary area for eliminating waste and duplication. This effort also meets the targets and requirements of other government initiatives, such as the Federal Data Center Consolidation Initiative (FDCCI), Cloud First Policy, and IT Shared Services Strategy. FXXA HXXC

The PfStat is a tool that agencies will use to assess the current maturity of their IT portfolio management process, make decisions on eliminating duplication, augment current capital planning and investment control processes, and move to shared solutions in order to maximize the return on IT investments across the portfolio. The PfStat initiative examines the IT investment portfolio as a whole and draws on the agency's EA to identify and eliminate areas of duplication and waste.²⁸



The OMB Memo M-12-10,²⁹ issued on March 30, 2012, provides specific reporting requirements and timelines by when they are to be submitted to OMB. HUD continues to comply with the requirements of the PfStat initiative, per OMB Memo M-12-10, by implementing PortfolioStat within the Department.

6.3.2 FEDERAL SHARED SERVICES

The Federal IT Shared Services Strategy promotes a more responsible, business-driven approach to IT service delivery across the federal government. It covers an entire spectrum of IT shared service opportunities that promotes the use of existing and newer strategic sourcing methods. This allows agencies to combine their buying power for similar IT needs while taking advantage of lowered cost and the ability to leverage various IT services during the process. When the Shared-First approach is implemented in conjunction with PortfolioStat investment reviews, HUD will aid in reducing waste and increasing overall ability to invest in more crucial innovative systems. HXXC

²⁷

<http://www.whitehouse.gov/goodgovernment/actions/campaign-cut-waste>

²⁸

http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-25.pdf

²⁹

http://www.whitehouse.gov/sites/default/files/omb/memoranda/2012/m-12-10_1.pdf



HUD has identified the following areas for the consolidation of IT and Shared Services, some of which have already been completed and others are underway:

Completed

- **Human Resources End-to-End (HRE2E)** - HUD subscribed to Treasury's HR Connect for its Performance Management Module, led by the Office of the Chief Human Capital Officer.
- **MicroStrategy Enterprise Licensing** - HUD is consolidating its business intelligence (BI) tools and completed the enterprise licensing. MicroStrategy has been chosen as a HUD BI tool standard.
- **Microsoft Enterprise Licensing** - In support of HUD's enterprise IT consolidation, HUD acquired an enterprise license for Microsoft software products. This enables HUD to leverage discounted pricing for large purchases and directly manage the licenses and associated training.

Ongoing

- **New Core Financial Services** - Ongoing - described in this document under FY2014 IT Projects. HUD is subscribing to Treasury's Financial Management Services, called ARC.
- HUD refers to OMB's Federal Shared Services Catalog for Federal agencies to determine existing shared services and platforms that can be leveraged to save costs. The catalog serves as a one-stop shop portal available to the Federal community on shared services in order to "Innovate with less." It can be found on the Max.gov website.³⁰

OMB encourages agencies to use the Federal Shared Services Catalog as follows:

- Planning and forecasting business improvements to fulfill business needs
- Determining alternatives when considering new and enhancing major investments
- Evaluating IT investments and legacy systems to improve IT portfolio performance
- Reducing cost structures through application rationalization toward shared services
- Improving quality of services while reducing costs through enhanced IT efficiency
- Funding investments focused on core mission services and capabilities

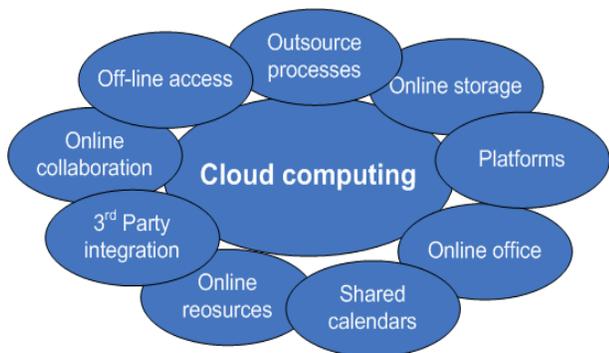
6.3.3 CLOUD FIRST POLICY

In February 2011, OMB issued the Federal Cloud Computing Strategy, as called for in its 25-Point Plan, which provides agencies with a decision framework for migrating services to a cloud environment. OMB also established the Federal Risk and Authorization Management Program (FedRAMP), to provide joint authorizations and continuous security monitoring services for all Federal agencies on cloud services.

The shift from building custom systems to adopting cloud technology and shared solutions should improve the Federal government's operational efficiencies and result in substantial cost savings. To implement its Cloud First Policy strategy,

³⁰

<https://max.gov/unclesamslist/itsharedservices>



HUD abides by and aligns with NIST cloud computing standards and guidance and General Services Administration (GSA) FedRAMP's concept of operations to:

- Ensure that cloud-based services have adequate information security.
- Eliminate the duplication of effort and reduce risk management costs.
- Enable rapid and cost-effective procurement of IT systems/services for federal agencies.

Cloud computing offers HUD more efficient, agile, and innovative services, and better returns on investments by applying innovations developed in the private sector. By moving towards a cloud business model, HUD expects to realize benefits in automatic allocation of physical storage and servers on an as-needed basis (self-provisioning). The benefit of moving to cloud-based email and collaboration tools is part of a government-wide effort to utilize more agile, lightweight technology to limit the need for more expensive and redundant infrastructure. This will demonstrate that agile, secure, reliable, and cost effective cloud options exist to rapidly improve the agency operations and services.

6.3.4 OPEN GOVERNMENT

In the “Memorandum on Transparency and Open Government”³¹, issued on January 21, 2009, the President instructed the Director of OMB to issue an Open Government Directive. The three principles of transparency, participation, and collaboration form the cornerstone of an open government. Transparency promotes accountability by providing the public with information about what the government is doing. Participation allows the public to contribute ideas and expertise so that their government can make policies with the benefit of information that is widely dispersed in society. For more information, visit the HUD Open Government Web site at: <http://portal.hud.gov/hudportal/HUD?src=/open>.

HUD complies with this directive and provides periodic activity reports to OMB. HUD EA is responsible for ensuring HUD's participation and meeting the Open Government requirements through:

- **Unveiling a multimedia channel** that allows Web site visitors easy access to informational videos and other social media sites. In addition, HUD launched HUD Ideas in Action, a crowd sourcing tool that encourages the public to offer policy and program suggestions, which then receive comments and reviews for potential implementation. HUD also launched the HUDdle, a bilingual, bi-directional blog;
- Hosting a first-ever “Twitter Town Hall,” in which interested citizens were able to learn how a silo-busting, cross-agency priority like the “Strong

31

http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf



Cities, Strong Communities” initiative was building local capacity on the ground, in real time. In addition to this pioneering use of social media, HUD has enhanced data and visualization tools available to meet the unique needs of HUD stakeholders;

- **Partnering with the Rockefeller Foundation**, the State Department, the American Planning Association, and the Government of Brazil, HUD hosted a global collaborative competition called “Sustainable Urban Housing: Collaborating for Livable and Inclusive Cities.” The competition identified innovative solutions for providing sustainable, energy efficient housing in a way that unleashes economic opportunities for the urban poor, and builds smarter, cleaner cities around the world. HUD partnered with the Department of Veterans Affairs and the Jon Bon Jovi Soul Foundation for Project REACH - a new app that will allow the providers of services for homeless veterans to quickly and easily access critical information to help the people they serve.

6.3.4.1 Open Data Policy Strategy

In Memorandum M-13-13, issued on May 12, 2013, “Open Data Policy - Managing Information as an Asset”, OMB requires agencies to collect or create information in a way that supports downstream information processing and dissemination activities. OMB provides a framework to enable agencies to establish and institutionalize the principles of effective information management to promote interoperability and openness. OMB also requires agencies to create an Enterprise Data Inventory that accounts for all data assets created or collected by HUD. This includes, but is not limited to, data assets in HUD’s information systems. The inventory must reflect an enterprise-wide

accounting of data assets across the Department and must use the required common core metadata required for data standardization.

HUD’s initial Data Publication Process, Data Inventory Schedule, Procedures, and Processes and Public Data Listing can be found at:

http://portal.hud.gov/hudportal/HUD?src=/Digital_Strategy.

6.3.5 DIGITAL GOVERNMENT STRATEGY

Technology is fundamentally transforming how HUD conducts business and interacts with citizens. The President has charged HUD with harnessing the power of technology to help create a 21st century digital government - one that is efficient, effective, and focused on improving the delivery of services to the American people. HUD’s Digital Strategy Plan progress report is found at:



http://portal.hud.gov/hudportal/HUD?src=/Digital_Strategy/report

HUD’s Digital Strategy Plan’s major objectives are as follows:

- Ensure all new IT systems follow the open data, content, and Web API policy and operationalize agency.gov/developer pages.
- Engage with customers to identify at least two existing major customer-facing services that contain high-value data or content as first-move candidates to make them compliant with new open data, content, and Web API policy. BXXA
- Develop an enterprise-wide inventory of mobile devices and wireless service contracts. BXXB

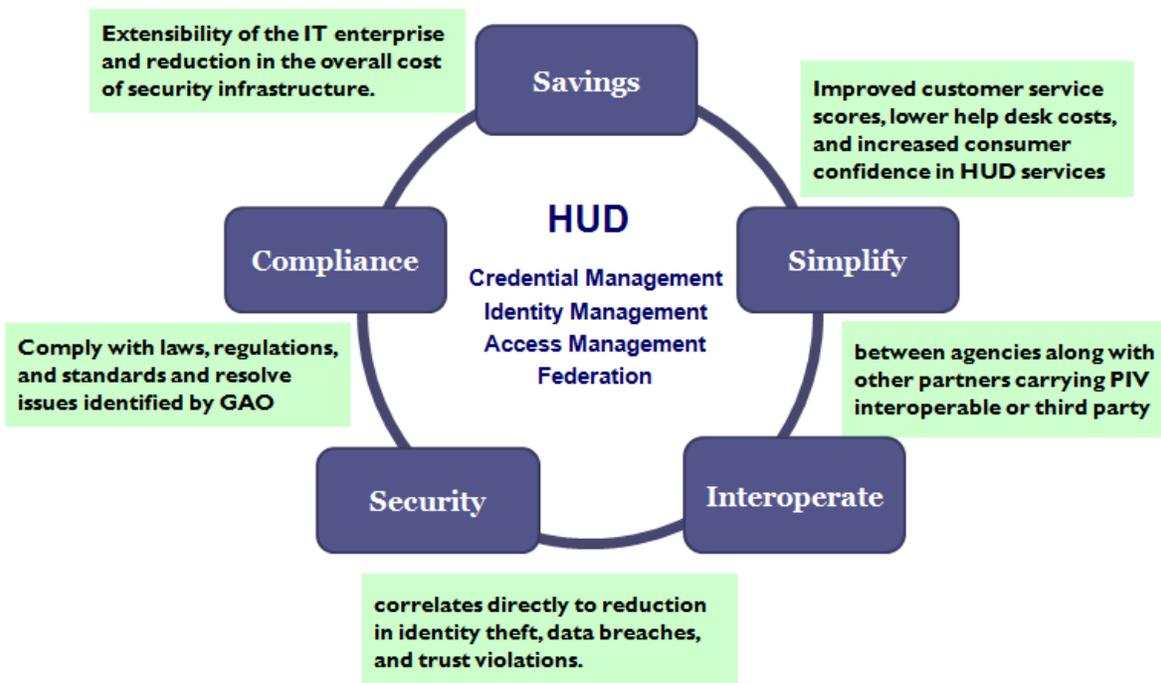


Figure 6-2: HUD's FICAM Goals and Benefits

- Evaluate the government-wide contract vehicles in the alternatives analysis for all new mobile-related procurements. [BXXB]
- Ensure all new digital services follow guidelines on digital services and customer experience improvement.
- Engage with customers to identify at least two existing priority customer-facing services to optimize for mobile use. [BXXB]
- Optimize at least two existing priority customer-facing services for mobile use and publish a plan for improving additional existing services. [BXXB] Implement performance and customer satisfaction measuring tools on all .gov Web sites.

HUD obtains user feedback through its hud.gov Web sites. An example of this is from PD&R found at http://www.huduser.org/portal/pdrdatas_landing.html.

6.3.6 FICAM SECURITY MANDATE

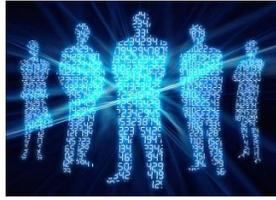
The Federal Identity, Credential, and Access Management (FICAM) is a set of security guidelines and implementation strategies that are required of all Federal agencies to establish a viable and secured information technology environment that is compliant with Federal regulations.

[AXXA] HUD's goals and expected benefits are summarized in **Figure 6-2: HUD's FICAM Goals and Benefits**. HUD's FICAM Assessment and Roadmap (January 2013) describes the findings and recommendations to resolve security gaps for the Department's IT environment. However, due to the sensitive nature of the security information it contains, they cannot be specified in this document.



6.4 IMPROVING HUD IT MANAGEMENT

In a collaborative effort with the OCIO staff and business representatives, HUD's updated IT management and



governance processes are integrated with IT Strategic Planning, Enterprise Architecture, Project Planning and Management (PPM), IT Operations and Security, and Customer Relationship Management, to yield the following benefits:

- **Provide a structured yet flexible process** that establishes baseline deliverables and tasks required from all projects, while customizing governance oversight and specialized deliverables based on a project's size, cost, and risk. Control gates manage the movement of projects from one phase to the next, based on each requirement and performance acceptance.
- **Standardize deliverables**, making it easy for project personnel to produce consistently high-quality artifacts. It also provides the quality assurance (QA) team the ability to review those artifacts effectively and efficiently, with standard templates to collect information. The new standards utilize best practices in project, architecture, and Earned Value Management (EVM).
- **Deviate from a one-size-fits-all approach** to an IT portfolio management and focus on real-world challenges that HUD customers face. **BXXA** This allows the OCIO to function more collaboratively with business areas to identify portfolio performance gaps, determine the best mix of investments, manage projects in a flexible manner, and ensure alignment with HUD's strategic goals. **AXXA**

- **Strengthen HUD's Capital Planning and Investment Control (CPIC) process** by establishing defined linkages with the other IT disciplines—EA, CPIC, Security, System Development, Project Planning and Management, and Infrastructure Operations and Services. Although each discipline has its own sets of procedures, they are aligned with the new IT management process.
- **Provide the mechanism** for ensuring that the project offices for each major IT investment are properly staffed and managed. The PPM calls for the development of a Staffing Management Plan that clearly articulates the human capital resources required to complete the projects. **FXXA** **IXXC**

6.4.1 IT GOVERNANCE

AXXA Through the establishment of HUD's Policy for Information Technology Governance - July 2011, the OCIO implemented a holistic, repeatable, and customizable IT governance process. This process improves IT asset management, maintains alignment with strategic goals, identifies portfolio performance gaps through architecture analysis, and funds and manages projects that address these gaps with improved IT portfolio management.

The governance structure supports HUD communication, decision-making goals, and legislative requirements. It has been established to properly manage the IT portfolio. The structure empowers business areas to influence IT strategic priorities and ensure that all portfolio activities align with mission area needs. This process requires significant business participation in the activities of the HUD IT governance bodies illustrated in **Figure 6-3: IT Governance Hierarchy**, and described below:

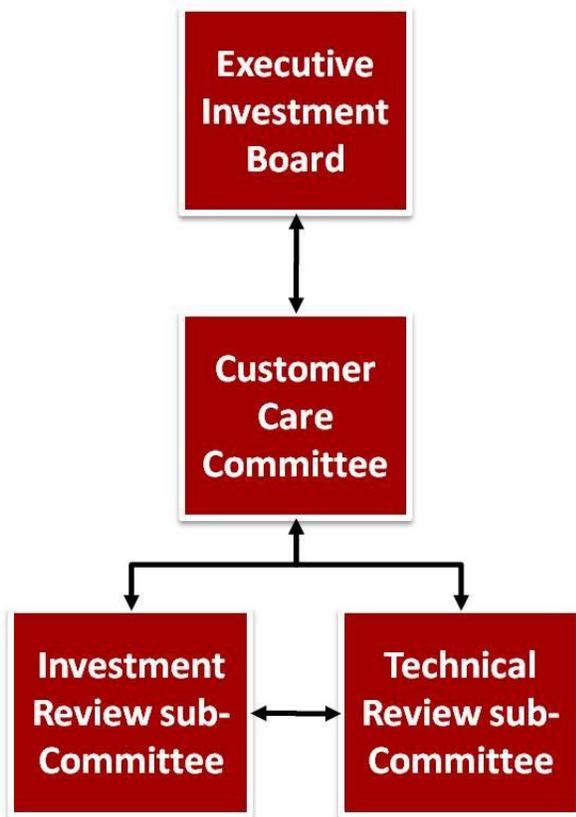


Figure 6-3: IT Governance Hierarchy

- **Executive Investment Board (EIB)** - comprised of the Department’s senior leaders. Its responsibilities include defining and implementing HUD’s strategic direction; managing the Department’s investment portfolio; and directly funding, overseeing, and

reviewing complicated, costly, and highly visible projects. [CXXA](#)

- **Customer Care Committee (CCC)** - comprised of executives from all relevant HUD offices that manage IT investments and perform oversight of all projects. The CCC’s responsibilities include ensuring that investments and projects align with the Department’s strategic plan, reviewing and submitting investment recommendations to the EIB, and coordinating with the IRC and TRC governance bodies on investments and project management. [CXXA](#)
- **Investment Review Subcommittee (IRC)** - comprised of HUD personnel from relevant program areas who focus on investment management oversight. Its responsibilities include reviewing business cases to ensure their alignment with the Department’s strategic goals, and participating in the annual IT budget formulation process as representatives of their respective investment executives and business units. [CXXA](#)
- **Technical Review Subcommittee (TRC)** - comprised of key personnel from within the Office of the Chief Information Officer (OCIO) with responsibilities for various aspects of the IT Management Framework implementation. It focuses on project oversight and technical architecture, and its responsibilities include ensuring that each segment aligns with the Department’s strategic goals, monitoring all HUD IT projects, and providing analysis to the IRC, CCC, and EIB, as needed. [CXXA](#)

6.4.2 IT MANAGEMENT FRAMEWORK

HUD’s IT Management (ITM) Framework enables business areas to efficiently and successfully achieve their IT goals, while maintaining focus on the Department’s



COMPONENTS OF IT MANAGEMENT FRAMEWORK

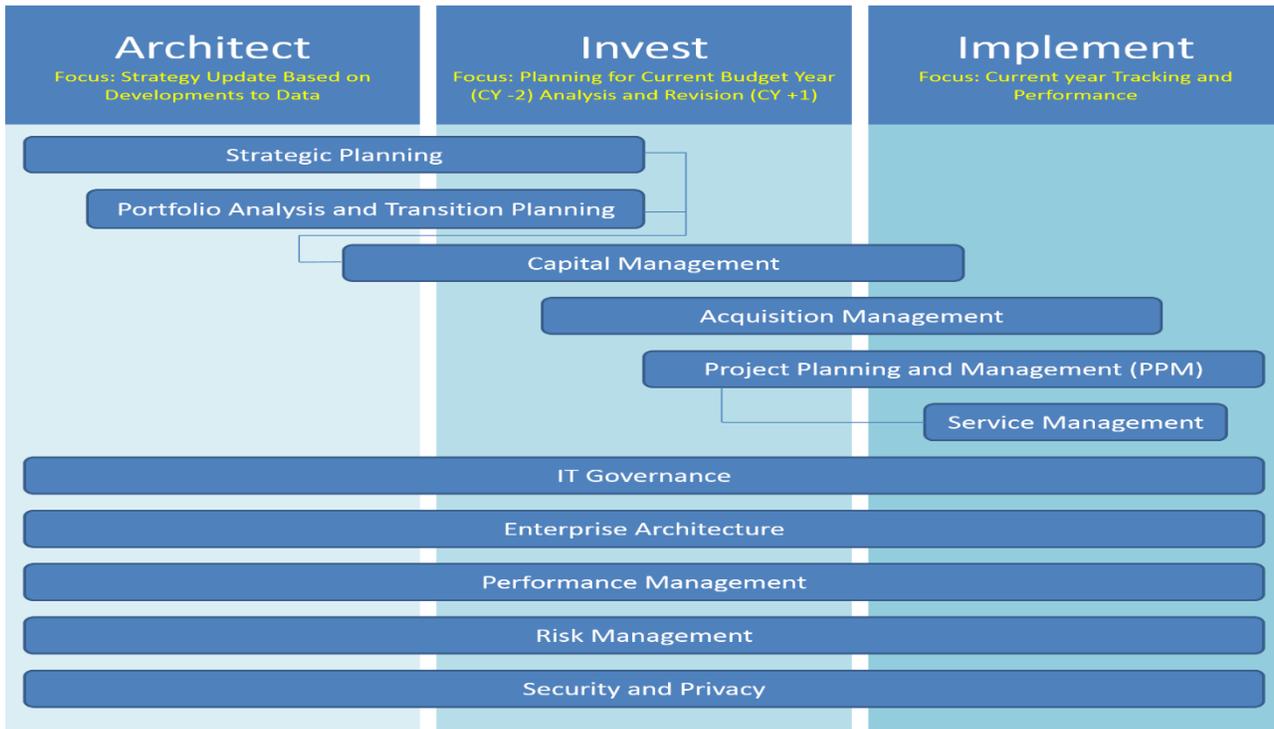


Figure 6-4: HUD IT Management Framework Component

strategic objectives and vision. It puts personnel, policies, procedures, processes, and guidelines in place to minimize cost overruns and schedule delays, maximize delivery of products and services that meet mission delivery needs, and reuse existing IT assets whenever possible. The ITM Framework is a repeatable, customizable process for planning and managing investments. The ITM comprises process in three stages: Architect, Invest, and Implement, which is based on OMB’s Performance Improvement Life Cycle. It addresses the flow of investments from architecture review through investment planning and funding, and subsequent project implementation.

HUD’s ITM is the overarching, integrated set of policies, people, roles and responsibilities, procedures and other elements for effectively managing HUD’s IT investments throughout its life cycle.

Figure 6-4: HUD IT Management Framework Component illustrates the ITM components and relationships.

AXXA CXXA The ITM approach enables the Department to identify the best mix of IT investments, maintain alignment with strategic goals and objectives, identify portfolio performance gaps through architecture analysis, fund and manage projects that address these gaps, and provide an IT governance structure that oversees the entire portfolio. Decision making by the IT governance bodies occurs at multiple places across the ITM Framework. More detailed descriptions of these and other decision points are described within the ITM Framework and Governance CONOPS v2.0 - June 2011.



6.4.3 IT PROJECT MANAGEMENT

6.4.3.1 Project Planning and Management

CXXA **AXXA** HUD's Project Planning and Management (PPM) Life Cycle is a framework to enhance IT governance through rigorous application of sound investment, project management principles, and industry best practices. The PPM provides the context for the governance process and describes interdependencies between its project management, investment management, and capital planning components. The PPM Life Cycle establishes an environment in which HUD IT investments and projects consistently achieve successful outcomes that align with Departmental goals and objectives.

By institutionalizing the PPM Life Cycle (see *Figure 4-2 on page 24*), HUD aims to resolve critical performance gaps in deploying IT capabilities through a planned, phased approach to project management.

The PPM Life Cycle ensures that all IT projects align with the Department's mission and support its business needs, while minimizing risks and maximizing returns. All projects developed and operated under HUD's PPM Life Cycle must conform to the principles, practices, and policies established by EA, security, and privacy; must contribute to the attainment of the Department's strategic goals at every stage of the development process; and must be guided by technical direction set for the HUD architecture. The establishment and deployment of the PPM demonstrates how the OCIO leadership continuously improves the way HUD does business. **AXXA**

6.4.3.2 Acquisition and Decommissioning Plan



As part of an effective acquisition management process, HUD monitors the

products and services the Department acquires to ensure that they align with performance goals and objectives. HUD's Annual Strategic Acquisition Plan (ASAP) Performance Report provides a departmental view of HUD's acquisitions being linked to the Annual Performance Plan (APP). The goal is to make sure that HUD acquisitions align with the APP for better cost accountability and budgeting.

Throughout HUD's PPM Life Cycle, an annual operational analysis is conducted to evaluate performance, user satisfaction, adaptability to changing business needs, and impact of new technologies. The analysis determines whether a solution should remain operating as is, or should be modified or retired.

Inevitably, changes in requirements and technology will necessitate the retirement of IT assets. To facilitate that transition, a *Decommission Plan* is prepared to describe the approach for retiring the asset and managing the associated software, hardware, records, and documentation. The plan is prepared and executed in the Decommission Phase of the PPM Life Cycle.

The Decommission Plan is the most significant deliverable in the decommissioning of an asset, and the contents will vary according to asset type and Department requirements. The objectives of the plan are to end the operation of an asset in a purposeful,



orderly manner and to ensure the proper disposition of all components and data. Particular emphasis is given to proper preservation of any data processed by the solution, ensuring that it is effectively migrated to another solution or archived in accordance with applicable records management regulations and policies for potential future access. The decommission activities preserve information, not only about the current solution, but also about the evolution of the asset through its life cycle. The completion of the asset's life cycle is carefully planned and documented to avoid disruption of the organizations using it or the operation of other interfacing assets.

6.4.3.3 Risk Management and Mitigation Strategy

The Project Charter of every project that goes through the PPM Life Cycle requires a "High Level Risk Identification" section, which specifies the identification of any known business, technology, or enterprise risks associated with the project. The project is also required to complete a risk registry during the PPM's Definition Phase.

The PPM's Definition Phase initiates risk management as part of the Project Management Plan (PMP), which includes identification, analysis, prioritization, and monitoring and control of risks. The activities during the Definition Phase are designed to help define preventative measures to reduce the probability of risks from occurring and identify countermeasures to deal with any constraints if they develop.



Development of the Risk Management Plan is an activity that takes place early in the project life cycle with updates and refinements made throughout the project

life cycle, as necessary. Specific critical partners will assess completeness of Definition Phase activities concerning risk management. During the remaining phases of the PPM Life Cycle, the Risk Management Plan is reviewed and updated.

6.5 HUD WORKFORCE DEVELOPMENT



HUD's Secretary Donovan stated in a memo, published in September 2009, that "Building strong,

sustainable, inclusive communities for years to come is something we are all a part of here at HUD. But our collective success hinges on whether we invest in our most precious resource: HUD's human capital." From his visits to a number of field offices across the country, the most consistent concern he heard is the urgent need to improve human capital - hiring, employee development, and retention. Immediate actions were announced to lay the foundation for Human Capital Transformation: FXXA IXXC

- Reorganization to focus more strategically on human capital - specifically hiring, employee development, and retention practices.
- Commitment to invest in better technology to bring the management of HUD's human resources into the 21st century - capturing the full end-to-end personnel cycle.
- Reformation of hiring and training practices so that when there is a need for new people, the best talent can be brought aboard as quickly as possible. Also, streamline hiring processes to ensure that all hiring actions initiated will be completed within 80 days.



OCIO Human Capital Strategic Plan

[FXXA] the OCIO staff plays a key role in providing IT support and services to accomplish HUD’s mission. The OCIO must have a workforce not only skilled in information technology, but also possessing business acumen and management skills to fulfill the increasing demand of HUD’s partners and customers for high-quality support and services. To attract and retain a diverse staff of highly skilled professionals, the IT leadership continuously assess, plan, and implement its human capital development strategy.

[BXXA] **[IXXC]**

[FXXA] **[IXXC]** The “OCIO Strategic Human Capital Plan (SHCP) for FY2012 - 2017”

will guide the OCIO leadership and the Office of the Chief Human Capital Officer (OCHCO) in achieving its workforce development goals. The plan is based on a current- and target-state analysis, alignment to HUD’s strategic goals, and its human capital goals and objectives. Building goals into OCIO leadership’s performance plans and using measurement and evaluation ensures accountability. Achieving these goals will enable HUD to have a diverse, highly skilled IT workforce that is able to support its mission and service to the public. **[AXXA]**

Table 6-2 describes tools/strategies that can be used to implement OCIO’s workforce development plan.

Table 6-2: OCIO Human Capital Tools and Strategies

Focus Area	Tool/Strategy	Recommended Use
Training	HUD OCHCO Supervisor Training Program	OCIO may leverage the training program provided by OCHCO to develop its workforce and better manage succession planning.
	Skills Gap Assessment	OCIO can use the information from the assessment to identify training needs in an effort to develop a highly-skilled workforce in which employee skills are well aligned with the job they perform.
	Master’s Certificate Program	Through this program, OCIO can make strides towards developing a highly skilled workforce and encourage employees to gain additional skills.
	HUD Virtual University	OCIO can encourage employees to participate in courses offered through HUD Virtual University to help cultivate a highly skilled workforce.
Hiring	USA Jobs	OCIO can utilize USA Jobs to hire employees that possess the necessary skills to function effectively in the reorganized OCIO structure.
Communication	Regularly Scheduled Team Meetings	During these regularly scheduled meetings, OCIO’s leadership, managers, and supervisors can disseminate important information related to organizational changes, strategy, and initiatives.
	All Hands Meeting	OCIO can utilize the meeting to provide a large-scale training opportunity, inform employees of major organizational changes, or recognize workforce members for their contributions.



Focus Area	Tool/Strategy	Recommended Use
	HUD Newsletter	Through the use of mass communication channels, OCIO can communicate information to the HUD workforce to inform, educate, and encourage employees to participate in HUD-wide programs.
Organizational Culture/Morale	Coin Reward Program	Through the reward program, OCIO can publicly reward employees for their contributions to the organization to raise employee morale.
	Federal Employee Viewpoint Survey	By utilizing data obtained from the survey, OCIO can make more informed decisions related to programs impacting culture and human capital.
	CXO Survey	By analyzing the results of the CXO survey, OCIO can identify problem areas with customer service and develop techniques to better serve HUD customers. BXXA

Figure 6-5: IT Strategic Goal for Operational Excellence provides a list of actions that the OCIO is implementing to develop and sustain a highly skilled and qualified workforce. This goal is aligned to HUD’s key management goal: “Make high quality data available to those who need it, when they need it, where they need it, to support decision making in furtherance of HUD’s mission.”

Develop and implement an IT Human Capital Plan			
Identify key IT skills and talents necessary to execute strategies	Determine appropriate balance for needed skills between government FTE and contractors	Close skill gaps by conducting an individual-level competency assessment to identify both hiring and training needs	Implement annual customer satisfaction surveys

Figure 6-5: IT Strategic Goal for Operational Excellence



APPENDIX I – FY14 EA PERFORMANCE PLAN RESULTS

Perspectives	Inventory & Outcome	Area of Measurement	Specific Measurement Indicator	Measurement Method & Targets (Timeline)	Comments and Artifacts
Spending “Ensure effective IT spending through informed decision making”	Inventories	Completeness	% of IT investments going through the IRB that have been reviewed by the EA Team	100%	Artifact: PPM EA checklists Comments:
			% of the Agency IT spend represented in the Enterprise Roadmap	Unknown, only 25% of FY14 DME funds have been allocated at this point.	Artifact: FY15 Enterprise Roadmap Comments:
		Accuracy	% of IT investments approved by the IRB aligned to the Target Architecture	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Ratio	O&M to DME Spending	Of the total \$295M dollar budget, 85% was allocated for O&M activities	Artifact: ITIM Budget Worksheet Comments:
	Outcomes	Cost Savings / Avoidance	# of dollars saved or how the EA Program contributes in cost savings or avoidance	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Efficiency	% of IT governance processes that EA participates in	50%. Of the 4 IT governing bodies within HUD, EA participates as charter member in 2 of them. The Investment Review sub-Committee (IRC) and the Technical Review sub-Committee (TRC)	Artifact: Investment Review sub-Committee (IRC) Charter; Technical Review sub-Committee (TRC) Charter Comments:
			% of acquisitions aligned to the standards product list	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.



Perspectives	Inventory & Outcome	Area of Measurement	Specific Measurement Indicator	Measurement Method & Targets (Timeline)	Comments and Artifacts
<p>Systems</p> <p>“Ensure IT supports the Mission”</p> <p>“Derive Cost Savings through system consolidation”</p>	Inventories	Completeness	% of Agency’s systems identified in Agency’s Technical and Application Architectures i.e. IRM and ARM	100% of known HUD IT systems and applications are identified in the Departments Applications Architecture.	Artifact: IT Asset Inventory, EBITS. Comments:
	Outcomes	Cost Savings / Avoidance	# of dollars saved or how the EA Program contributes in cost savings through system consolidation	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Reduction of Duplication	# of duplicate systems EA helped identify	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Efficiency	% of cycle time reduced or how the EA Program contributes to reduction in cycle time	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
			# of FTEs reduced or how the EA Program contributes to alignment of FTEs to Agency’s missions	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		IT Enablement	EA contribution to new IT adoption, using Technical and/or Application Architecture	HUD EA has developed a TRM SharePoint site that enables users to search existing HUD technologies and standards across the enterprise, facilitating reuse and cost savings.	Artifacts: Internal URL: http://hudsharepoint.hud.gov/sites/ocio/OCRPM/EA/TRM/default.aspx Comments:



Perspectives	Inventory & Outcome	Area of Measurement	Specific Measurement Indicator	Measurement Method & Targets (Timeline)	Comments and Artifacts
Services “Identify services for adoption or expansion throughout the Agency”	Inventories	Completeness	% of Agency services defined in Business Architecture (i.e., PRM and BRM)	38% of HUD’s Business Architecture has been developed through Segment Architecture. Through HUD’s Segment Prioritization Process, 7 of the 18 HUD segments were deemed priority in support of ongoing Business Transformation efforts.	Artifact: HUD’s Target Architecture; HUD Segment Prioritization Plan
		Accuracy	% of Agency services that are up to date and accurate	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
	Outcomes	Cost Savings / Avoidance	Cost savings/ avoidance gained from consolidating and sharing services	1. HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Reduction of Duplication	# of duplicate services EA helped identify	HUD cannot measure this EA value indicator at this time.	HUD will develop a plan and process to measure this indicator for future iterations of OMB EA Value Measurement Report.
		Efficiency	% of survey participants rating EA services satisfaction high	HUD cannot measure this EA value indicator at this time.	Comments: EA did not perform an Satisfaction Survey in 2014
			# of new shared services implemented every two years	2 new shared services have been implemented within HUD.	Artifact: Comments: Financial Management (New Core Project), Grants Management - NOFA phase (Grants Modernization Project),



APPENDIX II – HUD EA MANAGEMENT MATURITY ASSESSMENT FOR FY2015

The table below summarizes the results of the FY2015 HUD EAM Management Maturity Assessment.

EAMM Score	Description		HUD FY14 Score	HUD FY15 Score
24	points needed to achieve Stage 1	Stage 1 raw score	19	24
27	points needed to achieve Stage 2	Stage 2 raw score	23	27
39	points needed to achieve Stage 3	Stage 3 raw score	26	35
27	points needed to achieve Stage 4	Stage 4 raw score	18	22
24	points needed to achieve Stage 5	Stage 5 raw score	7	21
21	points needed to achieve Stage 6	Stage 6 raw score	5	16
162	Total Score		98	145
	HUD EA Program Management Maturity Stage		2	4-5

The details of the HUD EA Management Maturity Assessment for FY2015 are shown in the table below.

Table 3: FY2015 EA Management Maturity (EAMM) Assessment

EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
Stage 1	1	Written and approved organization policy exists for EA development, maintenance, and use	No policy Draft policy Reviewed policy Approved policy	3	3	YES	Approved HUD EA Policy - April 2002 Note: HUD EA Policy is being updated and will be routed for approval to incorporate changes to HUD's IT governance.
	2	Executive committee representing the enterprise exists and is responsible and accountable for EA	No committee Chartered Committee, Committee Convenes Committee makes Decisions	3	3	YES	HUD Customer Care Sub-Committee (CCC) Charter
	3	Executive committee is taking proactive steps	No committee exists	2	3	YES	HUD Technical Review Sub-Committee (TRC) Charter



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		to address EA cultural barriers	Exec Committee is intent on furthering EA acceptance Exec Committee work is integral to EA acceptance Exec Committee actions have enabled EA to be effective enterprise-wide				<i>IT Management Framework (June 2013)</i> <i>Project Planning and Management (PPM) v2 EA Compliance Checklist</i>
	4	Executive committee members are trained in EA principles and concepts	No Training Executive Training Plan/Materials Complete EAB training for Enterprise Architecture Complete EAB training for Segment Architecture	1	3	YES	<i>Executive Leadership Presentation of HUD FY14 Enterprise Roadmap</i> <i>HUD Restructure Segments explained to Executive Segment Owners/Sponsors as they apply to IT investments for the Annual IT Budget Formulation</i>
	5	Chief architect exists	No Chief architect Position identified Acting/Detailed Chief Architect FTE Chief Architect hired	2	3	YES	<i>HUD's Chief Architect is Raj Sharma</i>
	6	EA purpose is clearly stated	No purpose statement Draft Statement Approved Statement Published Statement	3	3	YES	<i>HUD.gov OCIO/EA Website</i> <i>HUD FY14 Enterprise Roadmap</i>
	7	EA framework(s) is adopted	No Framework Framework selected Framework adopted Framework implemented	3	3	YES	<i>HUD FY14 Enterprise Roadmap</i> <i>EBITS Repository Tool</i>
	8	EA performance and accountability	No Framework Draft Framework	2	3	YES	<i>FY15 EA Value Measurement Plan</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		framework is established.	Framework Implemented Framework aligned to GPRA measures				
Stage 2	9	EA budgetary needs are justified and funded	No budget Enterprise Standard Defined Funded at Nominal Level Resourced at least to Standard	3	3	YES	<i>FY14 Inventory of IT Assets (HUD PortfolioStat) FY15 OCIO investment under Budgeting and Planning Segment</i>
	10	EA Program office(s) exists	Does not exist Draft charter Approved charter Organizational Chart/Staffing Matrix	3	3	YES	<i>HUD FY14 Enterprise Roadmap - EA Program Section</i>
	11	EA Program Office leadership positions are filled	Does not exist 25% staff on-board 50% 75%	3	3	YES	<i>HUD FY14 Enterprise Roadmap Raj Sharma is HUD's Chief Architect</i>
	12	Program office human capital plans exist	No plan Reference plan Customized plan Approved plan	2	3	YES	<i>FY15 HUD Congressional Justification - OCIO Organization HUD FY13 Annual Performance Report (APR) and FY15 Annual Performance Plan (APP) - published in HUD.gov</i>
	13	EA development and maintenance methodology exists	No Methodology Development Defined Development Implemented or Maintenance Defined Development & Maintenance implemented	3	3	YES	<i>Segment Prioritization Guidelines HUD Segment Architecture Methodology (HSAM) HUD Segment Governance (Draft) HUD EA Program Standard Operating Procedures (April 2014) PPM v2 EA Compliance Checklist</i>
	14	Automated EA tools exist	No tools Offline (manual) tools	3	3	YES	<i>Enterprise Business Information Transformation (EBITS) Repository</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			Online tools Agency-wide access to tools				<i>EBITS User Guide in HUD@work</i> <i>Department's internal website</i> <i>ERWin Data Modeling Tool</i> <i>Metadata Repository</i>
	15	EA Program management plan exists and reflects relationships with other management disciplines	No Plan Draft EA program Plan Plan relationships established Approved Plan	1	3	YES	<i>HUD FY14 Enterprise Roadmap</i> <i>FY14 EA Program Work Breakdown Structure (WBS)</i> <i>IT Management Framework Governance (June 2013)</i>
	16	Work breakdown structure and schedule to develop EA exist	No WBS Draft WBS Approved WBS WBS is used by program	2	3	YES	<i>FY14 EA Program Work Breakdown Structure (WBS) - HUD EA Contract</i>
	17	EA segments, federation members, and/or extended members identified and prioritized	No segments identified Segment Identified Segments Prioritized Priorities communicated	3	3	YES	<i>HUD Segment Prioritization Guidelines</i>
	18	Program office readiness is measured and reported	No metrics Draft readiness metrics Measurements collected Metrics reported	N/A	N/A	N/A	<i>EA Program is operational at HUD</i>
Stage 3	19	Organization business owner and CXO representatives are actively engaged in architecture development	No external stakeholders are engaged One or more external business leaders are actively engaged in EA development EA development is important to several external stakeholders and leaders	2	2	NO	<i>FY14-FY16 Grants Management Modernization Plan (GMP) facilitated by HUD EA Team per request from GM Segment Sponsor and Deputy CIO</i> <i>Pending - Proposed establishment of HUD Segment Governance's Body - Business Planning Advisory Group (BPAG)</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			The majority of organizational owners are actively engaged in furthering the development of EA as it contributes to the organization's business decisions				
	20	EA human capital plans are being implemented	No Plan Human Capital/HR Plan is documented Planned requirements not yet fulfilled HR requirements fully met	1	2	NO	<i>OCIO Strategic Human Capital Plan - FY2012 -2016 EA Program Plan in HUD FY15 Enterprise Roadmap</i>
	21	Program office contract support needs are being met	No Plan EA Program contractor requirements documented Contractor requirements not yet fulfilled Contractor requirements fully met and accurately tracked	3	3	YES	<i>EA Contractor Monthly Status and Deliverables Report provided to GTR, GTM, and Chief Architect</i>
	22	Program office staff are trained in EA framework, methodology, and tools	No staff trained 49% or fewer trained in EA concepts and methods 50% or greater trained in EA frameworks, tools, methods Nearly all EA staff fully trained in their respective EA specialties	3	3	YES	<i>EA Staff Training on HUD Segment Architecture Methodology (HSAM)</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
	23	Methodologies and tools exist to determine investment compliance with corporate and subordinate architectures	No tools assess investments and EA compliance Analysis of EA compliance is done randomly Tools exist and are used periodically to assess EA investment compliance Enterprise-wide tools and methods exist and regularly used to assess EA compliance	2	3	YES	<i>HUD IT Management Framework Concept of Operations (CONOPS) v2.0</i> <i>HUD EA Standard Operating Procedures (April 2014)</i> <i>Enterprise Business Information Transformation System (EBITS) Tool EA Compliance Checklist for Project Planning and Management (PPM) v2</i>
	24	Methodologies and tools exist to determine subordinate architecture alignment with the corporate EA	No tools exist to assess alignment Analysis of subordinate EA alignment is done randomly Tools exist and are used periodically to assess EA alignment with subordinate architectures Tools and methods exist and are used regularly to assess EA alignment with subordinate architectures (including business, information/data, technical)	N/A	N/A	N/A	<i>HUD has only one EA Program and does not have subordinate architectures from agency "bureaus"</i>
	25	EA-related risks are proactively identified, reported, and mitigated	No risk tracking Risks are identified	0	3	YES	<i>Weekly EA Team Status Report discussed in Weekly Status Meeting</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			Risks are routinely identified and reported upon Risks to EA implementation are proactively identified, regularly reported upon and mitigation steps are documented				
	26	Initial versions of corporate “as-is” and “to-be” EA and sequencing plan are being developed	No documented as is or to be targets EA as is documented EA as-is and to-be targets documented Approved EA as-is and to-be targets	3	3	YES	<i>Developed and continually updated as reflected in the annual and quarterly update of the HUD Enterprise Roadmap</i>
	27	Initial version of corporate EA describing the enterprise in terms of performance, business, data, services, technology, and security is being developed	No Corporate EA Performance Plan Drafted EA including 2 or more aspects referenced EA drafted referencing security, business, and technology Approved complete EA	3	3	YES	<i>Developed and continually updated as reflected in the annual and quarterly update of the HUD Enterprise Roadmap</i>
	28	One or more segment and/or federation member architectures is being developed	No segments identified or defined One or more segments identified and under development Two or more segments fully documented All segments identified, aligned with EA, and integral	2	2	NO	<i>HUD EA Segment Architecture Report(s) developed from prioritized business segments Pending - Establishment of a HUD Segment Governance Body (BPAG) to enable and enforce EA Segment governance and architecture usage</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			to development of the target architecture				
	29	Architecture products are being developed according to the EA content framework	No EA Products traceable to a framework Plan exists for producing EA artifacts according to a selected framework 1 or more EA products reflected in documented framework Complete alignment of EA products and documented selected framework	2	3	YES	<i>HUD EA Artifacts align to OMB's FEA Reference Models HUD EA Segment Report(s) (EASRs) EBITS Repository Reports for All FEA Domains - aligned with OMB Common Approach to FEA Document</i>
	30	Architecture products are being developed according to a defined EA methodology	No products from an EA methodology Plan exists for producing EA artifacts according to a methodology 1 or more EA products reflected in documented methodology Complete set of EA products traceable to a selected and documented EA methodology	2	3	YES	<i>HUD Segment Architecture Methodology (HSAM) HUD EA Segment Report(s) (EASRs) EBITS Reports for All FEA Domains - aligned with OMB Common Approach to FEA Document</i>
	31	Architecture products are being developed using EA tools	No tools exist to aid EA development	2	3	YES	<i>Enterprise Business Information Transformation (EBITS) Repository ERWin (Computer Associates) is used as standard data modeling tool</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			A plan exists for using available EA development tools EA development tools are used to define and capture information according to a documented methodology Complete set of EA products are developed and traceable to documented EA methodology (including automated modeling and data repository tools)				<i>Metadata Repository (MDR)</i>
	32	Architecture development progress is measured and reported	EA development is not measured or reported upon EA development is reported upon, but not routinely assessed EA development is periodically measured against schedule, cost, etc. and reported upon A strong program of measurement and reporting aids EA development (including WBS, costs and external program commitments)	1	2	NO	<i>FY14 HUD Enterprise Roadmap has EA Value Measurement Report HUD EA Program Plan - WBS (Monthly Update) EA Investment Assessments for Expenditure Plan Submission Pending - Proposed establishment of a Segment Governance Body (BPAG) needed to ensure more robust EA performance measurement input Note: Need to integrate EA schedule with external program commitments</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
Stage 4	33	Executive committee has approved the initial version of corporate EA	<p>Exec Committee does not approve EA</p> <p>Exec Committee has authority to approve EA products (such as initial versions)</p> <p>Exec Committee is actively working to further EA and gain approval</p> <p>Exec Committee has formally approved initial versions of EA (including "as is" and target environments)</p>	3	3	YES	<i>Approved FY14 HUD Enterprise Roadmap by the Chief Information Officer (CIO), chair of the Technology Review Sub-Committee (TRC)</i>
	34	Key stakeholders have approved the current version of subordinate architectures	<p>Stakeholders do not approve subordinate architectures</p> <p>Stakeholders do have authority to approve subordinate architectures</p> <p>Key stakeholders actively engaged in reviewing EA and subordinate architectures</p> <p>Key stakeholders have approved current version of EA and subordinate architectures (demonstrating buy-in)</p>	N/A	N/A	N/A	<i>HUD has only one EA Program and does not have subordinate architectures to be approved from agency "bureaus"</i>
	35	EA is integral to the execution of other	EA is generally not regarded as useful	2	3	YES	<i>IT Management Framework Concept of Operations (CONOPS) v2.0 HUD IRM Strategic Plan Inputs</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		institutional management disciplines	EA products are used at various levels of program and project management EA products and program activities benefit a range of organizational decision-making EA products consistently inform and influence execution of other management disciplines such as acquisition selection, investment management, administration of the project/ portfolio lifecycle, etc.				<i>HUD Project Planning and Management (PPM) v2 Control Gate Reviews -EA Compliance Checklist</i>
	36	Program office human capital needs are met	No documented HR plan for EA EA Program HR needs are documented EA Program is staffed below its documented requirements EA Program HR requirements are fully met (including knowledge, skills, abilities to execute EA functions and roles)	1	3	YES	<i>HUD EA Program Chart in approved FY14 HUD Enterprise Roadmap HUD EA Program Contractor Support in place</i>
	37	Initial versions of corporate “as-is” and	No corporate “as-is” and “to-be” initial versions exist	3	3	YES	<i>Approved FY14 HUD Enterprise Roadmap (current, target, and transition strategy sections)</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		“to-be” EA and sequencing plan exist	Corporate “as-is” and/or “to-be” draft versions exist Corporate “as-is” and “to-be” initial versions exist and are under review Corporate “as-is”, sequencing plan and “to-be” initial versions exist (including EA principles, goals, measures, standards, and policies)				
	38	Initial version of corporate EA captures performance, business, data, services, technology, and security views	No initial version of EA exists Initial EA versions do not include multiple views (business, data, applications, infrastructure, security, performance) Current EA versions do capture performance, business, data, and other views Current EA version uses EA models to capture full range of views, artifacts, and subordinate architectures	2	3	YES	<i>Approved FY2014 HUD Enterprise Roadmap and Exhibits HUD EA Segment Reports (EASRs) Segment Line of Sight Diagrams FY14 Target Architecture Capabilities Diagram EBITS Generated Architecture Domain Reports</i>
	39	One or more segment and/or federation member architectures	No segment or federation members identified	2	2	NO	<i>HUD Segment Prioritization Guide HUD EA Segment Architecture Report(s) for 7 Major</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		exists and is being implemented	Segments and federation members identified and prioritized Several segments and federation members drafter All segments and federation members sequenced and under development to guide investment solutions towards a target architecture				<i>Transformation Initiatives - NOT all segments</i> <i>Integrated Sequencing Plan (ISP) - to be updated by OCIO PMO and ITIM</i> <i>Pending - Establishment of the HUD Segment Governance Body (BPAG) to determine segment prioritization</i>
	40	EA product quality is measured and reported	EA product quality is not measured or reported on EA product quality is reported upon, but not routinely assessed EA product quality is periodically assessed for completeness and accuracy and reported on A strong program of EA product quality assessment for usability and consistency exists that permits corrective action and continuous improvement	0	0	NO	<i>Pending - Establishment of the HUD Segment Governance Body - Business Planning Advisory Group (BPAG) to assess EA product quality & approval</i> <i>HUD EA Program Performance measures and process will be updated</i>
	41	EA results and outcomes are measured and reported	EA results/outcomes are not measured or reported on	3	2	NO	<i>FY14 HUD Enterprise Roadmap - EA Value Measurement Report & Plan</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			EA results/outcomes are reported upon, but not measured EA results/outcomes are irregularly measured A strong program to measure EA results/outcomes is used and routinely reported upon				<i>Pending - Establishment of the HUD Segment Governance Body (BPAG) to periodically assess EA value HUD EA Program Performance measures and process will be updated</i>
	42	Investment compliance with corporate and subordinate architectures is measured and reported	EA investment compliance not measured Investment compliance with EA and subordinate architectures is planned Investment compliance with EA and subordinate architectures is irregularly measured A strong program is used to measure EA investment compliance with EA and subordinate architectures (waiver statistics, alignment to standards, etc.)	2	3	YES	<i>Project Planning and Management (PPM) v2 - EA Compliance Checklist HUD IT Management Framework Concept of Operations (CONOPS) v2.0 HUD IT Annual Budget Formulation - Select Scoring EA Criteria</i>
	43	Subordinate architecture alignment with the corporate EA is measured and reported	Subordinate architectures show no alignment with corporate EA	N/A	N/A	N/A	<i>HUD has only one EA Program and does not have subordinate architectures from agency "bureaus" to be aligned and</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			1- Subordinate architectures are being developed to align with corporate EA More than 1 subordinate architectures show intentional alignment with EA The alignment of subordinate architectures with corporate EA is regularly measured and consistently reported upon				<i>measured with HUD level architecture</i>
Stage 5	44	Organization head has approved current version of the corporate EA	Organization Head has not seen current EA description(s) Organization Head is aware of EA content and descriptions Organization Head is reviewing current version of EA Head of Organization has formally approved and distributed key aspects of the corporate EA	1	3	YES	<i>Approved FY14 Enterprise Roadmap by HUD's Chief Information Officer HUD's Deputy Assistant Secretary, Chief Operations Officer (COO) has been apprised and will approve the FY15 Enterprise Roadmap</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
	45	Organization component heads or segment owners have approved current version of their respective subordinate architectures	Segment owners are not aware of segment architecture development Segment architecture owners are engaged with development progress Segment sponsors are aware of segment architectures being developed Segment sponsors has formally approved and supports their respective architectures	1	1	NO	<i>HUD EA Segment Reports (EASRs) for segments associated with major IT Transformation Initiatives Segment Governance Guide (Draft) Pending - Establishment of the HUD Segment Governance Body (BPAG) to ensure enable and approve segment architectures, usage, and updates</i>
	46	Integrated repository tools and common EA framework and methodology are used across the enterprise	HUD EA efforts do not share resources A plan exists to share EA information and resources across architecture initiatives EA strategies, information and resources are irregularly shared across HUD Well-integrated EA repository tools and EA framework are used across the enterprise to extend the EA	1	2	NO	<i>Enterprise Business Information Transformation (EBITS) Repository in production</i>
	47	Corporate and subordinate architecture program	No information sharing is evident	1	3	YES	<i>HUD has only one EA Program and does not have subordinate</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
		offices operate as a single virtual office that shares resources enterprise-wide	EA corporate office shares data and favored practices with subordinate architecture offices Effective planning and resource sharing is evident among EA program offices Corporate and subordinate architecture program offices have instituted ongoing practices to share resources				<i>architectures from agency "bureaus"</i> <i>HUD EA Program data/information and resources are planned and operated to be shared across the Department and partners, if needed</i>
	48	Corporate EA and sequencing plan are enterprise-wide in scope	No corporate EA or sequencing plan exists EA is enterprise-wide and/or sequencing plan is drafted or under review An enterprise EA is in place and sequencing plan is in place An enterprise EA is formally approved and sequencing plan is being executed	1	3	YES	<i>Approved FY2014 HUD Enterprise Roadmap - Integrated Sequencing Plan to be updated by PMO and ITIM</i> <i>Note: The ISP is also part of HUD's IT Expenditure Plan</i>
	49	Corporate EA and sequencing plan are aligned with subordinate architectures	No EA and/or sequencing plan exists The EA is enterprise-wide and draft includes subordinate architectures An enterprise EA is in place and includes	N/A	N/A	N/A	<i>HUD has only one EA Program and does not have subordinate architectures from agency "bureaus" to be aligned</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			subordinate architectures, An enterprise EA is formally approved and subordinate architectures are fully aligned to create a complete "to-be" environment.				
	50	All segment and/or federated architectures exist and are horizontally and vertically integrated	Segment and federated architectures not integrated Segment and federated architectures are horizontally aligned Segment and federated architectures have plans for full integration All segments and federated architectures are fully aligned, forming a coherent family of architectures integrated vertically and horizontally	2	3	YES	<i>HUD Segment Architecture Methodology (HSAM) Enterprise Business Information Transformation System (EBITS) Repository contains HUD segment artifacts by architecture domain (business, data, system/application, infrastructure, security, performance)</i>
	51	Corporate and subordinate architectures are extended to align with external partner architectures	Corporate and subordinate architectures not aligned Corporate and subordinate architectures are aligned	0	3	YES	<i>HUD has only one EA Program and does not have subordinate architectures from agency "bureaus" to be aligned. HUD EA aligns with OMB's FEA Framework v2 (January 2013) and Reference Models - standardizing EA methods and procedures across the Federal government</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			Corporate and subordinate architectures have documented relationships to external partners Corporate EA and subordinate architectures are fully aligned with external partners to optimize organization's performance				
	52	EA products and management processes are subject to independent assessment	No means to enable independent EA program assessment Corporate means are in place to conduct independent EA program assessments At least 1 independent EA program assessment has been conducted and reported on A mature process is in place to consistently conduct independent EA program assessments and report findings	0	3	YES	<i>HUD OIG Audit Report on IT Modernization Evaluation Out-Brief (2015-OE-0002) - EA Maturity Assessment Recommendations</i> <i>GAO-12-791 Audit Report - EA Value Needs to be Measured and Reported (September 2012)</i> <i>Enterprise Business Information Transformation System (EBITS) Tool</i>
Stage 6	53	EA is used by executive leadership to inform organization strategic planning and policy formulation	EA is not used by organization leadership EA products are used at times to inform strategic and tactical planning	1	2	NO	<i>HUD IT Management Framework CONOPS v2 (June 2012)</i> <i>FY14 HUD Enterprise Roadmap aligned with FY14 - FY18 IRM Strategic Plan</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			EA products are used for decision-making in organizational units external to the EA program EA products and personnel are regularly involved to inform strategic planning decisions and organization policy formulation				<i>Shared EA information for Integrated Planning Teams (IPTs) documentation</i> <i>EA Compliance Checklist for the Project Planning and Management (PPM) v2</i> <i>Pending - Establishment of the HUD Segment Governance Body (BPAG) to approve segment artifacts, enable governance, and promote use for decision making and impact analysis</i>
	54	EA human capital capabilities are continuously improved	No documented HR plan for EA EA staff capabilities have been assessed and recorded EA Program has unmet documented capabilities EA HR capabilities are fully met and continuously re-evaluated for needed enhancements	0	2	NO	<i>Approved HUD FY14 Enterprise Roadmap - EA Program Section</i> <i>HUD EA Team Segment Assignments (January 2015)</i> <i>Digital Asset Services Strategy (April 2015)</i>
	55	EA methodologies and tools are continuously improved	No tools exist to aid EA development A plan exists for improving EA methodology and tools use EA methodology and tools use are evaluated on a regular basis Corporate EA methodologies and	1	3	YES	<i>Approved HUD FY14 Enterprise Roadmap - EA Program Section</i> <i>Enterprise Business Information Transformation System (EBITS) Tool Upgrade to System Architect XT to allow online end-user queries</i> <i>Proposed establishment of the HUD Segment Governance Body (BPAG) to approve segment artifacts, enable governance, and promote</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
			tools are continuously improved based upon evaluation and alternative analyses				<i>use for decision making and impact analysis Added Pre-Select Phase to HUD/Plus -EA proposed addition of Pre-Select of the Capital Planning and Investment Control (CPIC) process to better assess and document business needs being submitted for IT investment funding.</i>
	56	EA management processes are continuously improved and reflect the results of external assessments	EA program has no written management processes A plan exists to document EA program management processes Several EA program management processes are documented and reviewed regularly EA management processes are routinely assessed using a known continuous improvement process, such as ITIL, Lean Six Sigma, or other framework and include inputs from external assessments	0	3	YES	<i>HUD EA Team Offsite Brainstorming Session (March 2014) Agenda HUD EA Standard Operating Procedures (April 2014) FY13 Enterprise Architecture Assessments from other Agencies HUD EA Monthly Contract Reports FY14 Enterprise Roadmap - EA Value Measurement Plan and Report HUD OIG Audit on EA Program Maturity - December 2014</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
	57	EA products are continuously improved and updated	EA product quality is not measured or reported EA product quality is assessed infrequently EA product quality is controlled and periodically assessed A strong regimen of continuous improvement using an externally recognized framework (ITIL, Lean Six Sigma, etc.) to assess EA and manage product configuration	1	2	NO	<i>Approved HUD FY14 Enterprise Roadmap - EA Program Section Update of FY13 Enterprise Roadmap (August 2014) to reflect new HUD Strategic Plan FY14-FY18)</i> <i>Pending - Proposed establishment of the HUD Segment Governance Body (BPAG) to validate relevance of segment artifacts, enable governance, and promote use of EA products and IT investment assessments to improve decision making, impact analysis, and change management.</i>
	58	EA quality and results measurement methods are continuously improved	EA quality and results are not measured EA quality and results are infrequently assessed or reported EA quality and results are periodically assessed A strong regimen of continuous improvement based on a known framework (e.g., ITIL, Lean Six Sigma) with EA quality and results are measured and regularly reported upon	2	2	NO	<i>Same described for Item 57 - Need to establish segment governance process supported by the proposed Business Planning Advisory Group (BPAG)</i>



EAMM Stage	Core Element	Element Description	EAMM Scoring Criteria	FY13 Score	FY14 Score	GOAL Achieved?	Evidence
	59	EA continuous improvement efforts reflect the results of external assessments	EA program has no continuous improvement goals EA program has a plan for continuously improving EA program has implemented a process for continuous improvement based on metrics gathering and assessments EA program continuous improvement efforts reflect the results of external assessments	0	2	NO	<i>Same as described for Item 57 - Need to establish segment governance process supported by the proposed Business Planning Advisory Group (BPAG)</i>



APPENDIX III – IT ASSET INVENTORY

IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Major Investment			General Government (10)	"804 - General property and records management"	"143 - Goods and Services Acquisition"													
HUD Procurement System	Acquisition Management	Acquisition Management		"804 - General property and records management"	"143 - Goods and Services Acquisition"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"001 - Invoice Tracking and Approval"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Low
Small Purchase System	Acquisition Management	Acquisition Management		"804 - General property and records management"	"143 - Goods and Services Acquisition"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"001 - Invoice Tracking and Approval"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Low
HUD Integrated Acquisition Management System	Acquisition Management	Acquisition Management		"804 - General property and records management"	"143 - Goods and Services Acquisition"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"002 - Procurement"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
eGov IAE - Loans and Grants	Acquisition Management	Acquisition Management		"804 - General property and records management"	"143 - Goods and Services Acquisition"	"530 - Process Tracking"				"D01 - Mission Support Data"	"002 - Assurances"	"001 - Invoice Tracking and Approval"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
			General Government (10)	"804 - General property and records management"	"119 - Facilities, Fleet and Equipment Management"													
Facilities Integrated Resource Management System	Administrative Management	Facilities Management		"804 - General property and records management"	"119 - Facilities, Fleet and Equipment Management"	"530 - Process Tracking"	"129 - Reporting and Information"			"D04 - Resource Data"	"002 - Business Resources"	"063 - Media and Facilities Reservations"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Total Maintenance Management System	Administrative Management	Facilities Management		"804 - General property and records management"	"119 - Facilities, Fleet and Equipment Management"	"530 - Process Tracking"	"144 - Inventory Control"			"D04 - Resource Data"	"002 - Business Resources"	"063 - Media and Facilities Reservations"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
			General Government (10)	"810 - Cyber security services and key asset/ infrastructure protection"	"121 - Security Management"													
HUD Security Manager System	Administrative Management	Physical Security Management Services (Non-IT Security)		"810 - Cyber security services and key asset/ infrastructure protection"	"121 - Security Management"	"337 - Credential Issuance and Management"				"D02 - Enterprise Support Data"	"003 - Protections"	"080 - Fault Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
OSEP Security Control System	Administrative Management	Physical Security Management Services (Non-IT Security)		"810 - Cyber security services and key asset/ infrastructure protection"	"121 - Security Management"	"337 - Credential Issuance and Management"				"D02 - Enterprise Support Data"	"003 - Protections"	"073 - Intrusion Detection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
			General Government (10)	"813 - Support delivery of federal services"	"120 - Help Desk Services"													
Administrative Client Request/Response System	Administrative Management	Workplace Services		"813 - Support delivery of federal services"	"120 - Help Desk Services"	"530 - Process Tracking"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"010 - Call Center / Help Desk"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Presentation Graphics	Administrative Management	Workplace Services		"811 - Information sharing"	"343 - Audio / Video Conferencing"											Low	Low	Low
Telephone Directory and Locator System	Administrative Management	Workplace Services		"805 - Central personnel management"	"644 - Workforce Directory / Locator"	"120 - Help Desk Services"	"145 - Logistics Management"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"227 - Directory"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Major Investment			General Government (10)	"813 - Support delivery of federal services"	"318 - Business Analytics"													
Consolidated Single Family Statistical System	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"	"001 - Homeownership Promotion"				"D03 - Guidance Data"	"004 - Measures"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Policy and Research Information Server	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"					"D03 - Guidance Data"	"004 - Measures"	"211 - Statistical Analysis"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Low
Agency-Wide Place Based Performance Management System (HUDSTAT)	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"	"104 - Strategic Planning"				"D03 - Guidance Data"	"004 - Measures"							
CompareA76	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"	"129 - Reporting and Information"				"D03 - Guidance Data"	"004 - Measures"	"206 - Mathematical"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Low
HEREMS Field Office Reporting Utility	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"					"D03 - Guidance Data"	"005 - Plans"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Low
Housing Modeling and Evaluation	Business Analytical Services	Analytical Services		"813 - Support delivery of federal services"	"318 - Business Analytics"	"001 - Homeownership Promotion"				"D03 - Guidance Data"	"004 - Measures"	"206 - Mathematical"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Affirmatively Furthering Fair Housing User Interface (AFFH-U)	Business Analytical Services	Analytical Services																
			General Government (10)	"812 - Knowledge management"	"590 - Mapping / Geospatial"													
Geocoding Service Center	Business Analytical Services	Geospatial Services		"812 - Knowledge management"	"590 - Mapping / Geospatial"	"604 - Meta Data Management"				"D03 - Guidance Data"	"003 - Locations"	"385 - Geospatial Data Analysis"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Moderate



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Geospatial Services includes AFFH Tool	Business Analytical Services	Geospatial Services		"812 - Knowledge management"	"590 - Mapping / Geospatial"	"604 - Meta Data Management"				"D03 - Guidance Data"	"003 - Locations"	"385 - Geospatial Data Analysis"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Moderate
Consolidated Plan and HEARTH Grant GIS planning tool	Business Analytical Services	Geospatial Services		"812 - Knowledge management"	"590 - Mapping / Geospatial"					"D03 - Guidance Data"	"003 - Locations"	"389 - Imagery"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Moderate
eGov Geospatial LOB	Business Analytical Services	Geospatial Services		"812 - Knowledge management"	"590 - Mapping / Geospatial"							"386 - Geospatial Data Collection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Moderate
Geocoding Validation / GIS Mapping	Business Analytical Services	Geospatial Services		"812 - Knowledge management"	"590 - Mapping / Geospatial"					"D03 - Guidance Data"	"003 - Locations"	"385 - Geospatial Data Analysis"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Moderate
			General Government (10)	"808 - Other General Government"	"319 - Regulatory Compliance"													
Enterprise Income Verification	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"038 - Housing Assistance"	"129 - Reporting and Information"	"325 - Information Discovery"	"344 - Web Content Management"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Quality Management Review Program	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"318 - Business Analytics"	"530 - Process Tracking"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"208 - Portfolio Management"						
Agency Reporting Module	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"530 - Process Tracking"	"129 - Reporting and Information"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"201 - Balanced Scorecard"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Low
INtegrated Assessment Sub-System	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"318 - Business Analytics"	"129 - Reporting and Information"	"576 - Knowledge Capture"	"592 - Data Mining"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"205 - Forensics"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Management Assessment Sub-System REAC	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"318 - Business Analytics"	"129 - Reporting and Information"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"201 - Balanced Scorecard"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Physical Assessment Sub-System-PIH/REAC	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"318 - Business Analytics"	"108 - Customer Services"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"206 - Mathematical"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Quality Assessment Sub-System	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"038 - Housing Assistance"	"108 - Customer Services"	"530 - Process Tracking"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"082 - Monitoring"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Moderate	Low
Resident Assessment Sub-System	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"108 - Customer Services"				"D01 - Mission Support Data"	"001 - Mission Support Activities"	"212 - Survey Data Collection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Section 3 Summary Reporting System (Section 3)	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"318 - Business Analytics"				"D01 - Mission Support Data"	"001 - Mission Support Activities"	"210 - Standardized / Canned"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
NGMS - Housing Choice Vouchers	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"038 - Housing Assistance"				"D01 - Mission Support Data"	"002 - Assistances"							
Photo for Physical Inspections	Controls and Oversight	Controls and Oversight		"808 - Other General Government"	"319 - Regulatory Compliance"	"001 - Homeownership Promotion"				"D01 - Mission Support Data"	"002 - Assistances"							
ONAP	Controls and Oversight	Controls and Oversight																
			General Government (10)	"808 - Other General Government"	"319 - Regulatory Compliance"													
Financial Assessment Sub-System-FHA	Controls and Oversight	Housing Finances		"808 - Other General Government"	"319 - Regulatory Compliance"	"038 - Housing Assistance"	"318 - Business Analytics"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"002 - Assistances"							
Financial Assessment Sub-System Public Housing Agency	Controls and Oversight	Housing Finances		"808 - Other General Government"	"319 - Regulatory Compliance"	"038 - Housing Assistance"	"318 - Business Analytics"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"002 - Assistances"	"212 - Survey Data Collection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Moderate
Financial Management Center-Reports and Data System	Controls and Oversight	Housing Finances		"803 - Central fiscal operations"	"129 - Reporting and Information"	"318 - Business Analytics"				"D01 - Mission Support Data"	"002 - Assistances"	"212 - Survey Data Collection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Moderate
			General Government (10)	"813 - Support delivery of federal services"	"108 - Customer Services"													
Credit Alert Interactive Voice System	Customer Relationship Management Services	Customer Initiated Assistance		"813 - Support delivery of federal services"	"108 - Customer Services"	"530 - Process Tracking"				"D01 - Mission Support Data"	"001 - Mission Support Activities"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
			General Government (10)	"813 - Support delivery of federal services"	"108 - Customer Services"													
Multifamily System Help Desk	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"120 - Help Desk Services"	"038 - Housing Assistance"			"D01 - Mission Support Data"	"001 - Mission Support Activities"							
Customer Assessment Sub-System	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"120 - Help Desk Services"				"D01 - Mission Support Data"	"001 - Mission Support Activities"	"010 - Call Center / Help Desk"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Ginnie Mae Enterprise Portal General Support System	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"344 - Web Content Management"	"603 - Data Warehouse"			"D01 - Mission Support Data"	"002 - Assistances"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
FHA-CRM	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"001 - Homeownership Promotion"	"576 - Knowledge Capture"	"577 - Knowledge Distribution and Delivery"		"D04 - Resource Data"	"002 - Business Resources"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
HUD WebCenter	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"344 - Web Content Management"						"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Multi-Family Housing End User Support Services	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"680 - Issue Tracking"	"038 - Housing Assistance"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Request of Information Technology Services	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"	"120 - Help Desk Services"	"530 - Process Tracking"			"D04 - Resource Data"	"002 - Business Resources"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Location Affordability Portal	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"					"D01 - Mission Support Data"	"001 - Mission Support Activities"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
ProofPoint	Customer Relationship Management Services	Customer Relationship Management		"813 - Support delivery of federal services"	"108 - Customer Services"					"D01 - Mission Support Data"	"001 - Mission Support Activities"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
			General Government (10)	"812 - Knowledge management"	"603 - Data Warehouse"													
Single Family Housing Enterprise Data Warehouse	Data Management	Data Management Services		"812 - Knowledge management"	"603 - Data Warehouse"	"353 - Information Exchange and Transformation"	"601 - Data Exchange"		"339 - Information Mapping / Taxonomy / Categorization"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Electronic Data Interchange System	Data Management	Data Management Services		"812 - Knowledge management"	"601 - Data Exchange"	"001 - Homeownership Promotion"						"221 - Data Extraction, Transformation and Loading"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HSG Multifamily On-Line Property Integrated Information Suite Data Mart	Data Management	Data Management Services		"812 - Knowledge management"	"603 - Data Warehouse"	"353 - Information Exchange and Transformation"	"601 - Data Exchange"		"339 - Information Mapping / Taxonomy / Categorization"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Data Management Services	Data Management	Data Management Services		"812 - Knowledge management"	"601 - Data Exchange"	"353 - Information Exchange and Transformation"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"							
HUD Metadata Repository	Data Management	Data Management Services		"812 - Knowledge management"	"604 - Meta Data Management"	"592 - Data Mining"	"339 - Information Mapping / Taxonomy / Categorization"			"D04 - Resource Data"	"002 - Business Resources"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HATS/PERIS NFC FTP	Data Management	Data Management Services		"812 - Knowledge management"	"601 - Data Exchange"	"353 - Information Exchange and Transformation"				"D04 - Resource Data"	"002 - Business Resources"					Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Enterprise Master Data Management	Data Management	Data Management Services		"812 - Knowledge management"	"601 - Data Exchange"	"353 - Information Exchange and Transformation"												
HPNFC (not in the OCHCO system inventory)	Data Management	Data Management Services																
			General Government (10)	"811 - Information sharing"	"661 - Document Library"													
1-Digial Asset Services/HUD Enterprise Records Management System	Digital Asset Services	Document Management		"811 - Information sharing"	"661 - Document Library"	"345 - Management of Government Records"	"533 - Correspondence Management"			"D02 - Enterprise Support Data"	"001 - Communications"	"265 - Records Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Direct Distribution System SpectrumPlus	Digital Asset Services	Document Management		"812 - Knowledge management"	"577 - Knowledge Distribution and Delivery"	"108 - Customer Services"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"284 - Knowledge Distribution and Delivery"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HUD Electronic Metering DASH Board	Digital Asset Services	Document Management		"811 - Information sharing"	"661 - Document Library"	"004 - Postal Services"						"261 - Document Library"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
IT Modernization - Digital Asset Services	Digital Asset Services	Document Management		"812 - Knowledge management"	"577 - Knowledge Distribution and Delivery"	"345 - Management of Government Records"	"661 - Document Library"											
GinnieNET	Digital Asset Services	Document Management		"812 - Knowledge management"	"576 - Knowledge Capture"	"531 - Case Management"	"345 - Management of Government Records"	"108 - Customer Services"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"263 - Forms Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
SFI TransAccess: Case Binder Management Module	Digital Asset Services	Document Management		"811 - Information sharing"	"661 - Document Library"	"345 - Management of Government Records"	"666 - Classification"			"D01 - Mission Support Data"	"003 - Cases"	"265 - Records Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Correspondence Tracking System	Digital Asset Services	Document Management																
			General Government (10)	"808 - Other General Government"	"010 - Emergency Response"													
National Housing Locator System	Disaster Management	Disaster Management		"808 - Other General Government"	"010 - Emergency Response"	"531 - Case Management"	"318 - Business Analytics"			"D03 - Guidance Data"	"006 - Risks"	"282 - Information Retrieval"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Disaster Assistance Improvement Plan (eGov)	Disaster Management	Disaster Management		"808 - Other General Government"	"009 - Disaster Repair and Restore"	"601 - Data Exchange"	"108 - Customer Services"					"263 - Forms Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Major Investment			General Government (10)	"803 - Central fiscal operations"	"124 - Accounting"													



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Administrative Accounting-Personal Svcs Cost Rpt Subsystem	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"124 - Accounting"	"579 - Record Linking / Association"				"D04 - Resource Data"	"002 - Business Resources"	"022 - Budget Planning and Execution"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Loan Accounting System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"127 - Collections and Receivables"	"038 - Housing Assistance"	"318 - Business Analytics"	"579 - Record Linking / Association"		"D04 - Resource Data"	"002 - Business Resources"	"021 - Accounts Receivable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
HUD Central Accounting and Program System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"124 - Accounting"	"318 - Business Analytics"	"126 - Payments"	"127 - Collections and Receivables"	"129 - Reporting and Information"	"D04 - Resource Data"	"002 - Business Resources"	"024 - General Ledger"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Audit Resolution and Corrective Action Tracking System	Financial Management	Core Financial Services		"802 - Executive direction and management"	"259 - Budget and Performance Integration"	"530 - Process Tracking"	"321 - Regulatory Enforcement"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"070 - Audit Trail and Capture"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Low
Bond Payment System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"129 - Reporting and Information"	"038 - Housing Assistance"	"126 - Payments"	"318 - Business Analytics"		"D04 - Resource Data"	"002 - Business Resources"	"021 - Accounts Receivable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Financial Data Mart	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"129 - Reporting and Information"	"318 - Business Analytics"	"124 - Accounting"	"603 - Data Warehouse"		"D04 - Resource Data"	"002 - Business Resources"	"200 - Ad hoc Reporting"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Ginnie Mae Financial & Accounting System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"124 - Accounting"	"318 - Business Analytics"	"126 - Payments"	"127 - Collections and Receivables"	"129 - Reporting and Information"	"D04 - Resource Data"	"002 - Business Resources"	"024 - General Ledger"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
HUD's Consolidated Financial Statement System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"129 - Reporting and Information"	"318 - Business Analytics"	"124 - Accounting"	"603 - Data Warehouse"		"D04 - Resource Data"	"002 - Business Resources"	"201 - Balanced Scorecard"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Line of Credit Control System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"126 - Payments"	"362 - Federal Financial Assistance"				"D04 - Resource Data"	"002 - Business Resources"	"020 - Accounts Payable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Secure Payment System	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"126 - Payments"	"601 - Data Exchange"				"D04 - Resource Data"	"002 - Business Resources"	"020 - Accounts Payable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
HUD Enterprise-Wide Financial Mgmt Project (New Core)	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"124 - Accounting"	"318 - Business Analytics"	"126 - Payments"	"127 - Collections and Receivables"	"129 - Reporting and Information"	"D04 - Resource Data"	"002 - Business Resources"							
OCIO-eGov Financial Management LOB	Financial Management	Core Financial Services		"803 - Central fiscal operations"	"124 - Accounting"	"318 - Business Analytics"	"129 - Reporting and Information"			"D04 - Resource Data"	"002 - Business Resources"	"024 - General Ledger"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
			General Government (10)	"803 - Central fiscal operations"	"122 - Travel"													
FedTraveler	Financial Management	Travel Services		"803 - Central fiscal operations"	"122 - Travel"	"126 - Payments"	"318 - Business Analytics"	"124 - Accounting"		"D04 - Resource Data"	"002 - Business Resources"	"026 - Travel"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Prepared by Client Tracking Database	Financial Management	Tracking and Workflow	General Government (10)	"802 - Executive direction and management"	"259 - Budget and Performance Integration"	"533 - Correspondence Management"	"530 - Process Tracking"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"210 - Standardized / Canned"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Low
Major Investment			General Government (10)	"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"													
Integrated Disbursement & Information System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"				"D01 - Mission Support Data"	"002 - Assistances"	"030 - Grants Administration"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Quarterly Progress Reporting System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"129 - Reporting and Information"	"530 - Process Tracking"		"D01 - Mission Support Data"	"002 - Assistances"	"032 - Grant Receipt of Proposals"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Disaster Recovery Grant Reporting System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"008 - Disaster Preparedness and Planning"	"009 - Disaster Repair and Restore"	"010 - Emergency Response"	"D01 - Mission Support Data"	"002 - Assistances"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Electronic Special Needs Assistance Program System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"				"D01 - Mission Support Data"	"002 - Assistances"	"030 - Grants Administration"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Electronic Grants Management in Support of the HEARTH Act	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"				"D01 - Mission Support Data"	"002 - Assistances"							
CPD Grants Monitoring Process	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"				"D01 - Mission Support Data"	"002 - Assistances"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
FHIP Integrated Complaint Tracking and Information Collection System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"576 - Knowledge Capture"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"002 - Assistances"	"032 - Grant Receipt of Proposals"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Grants Interface Management System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"353 - Information Exchange and Transformation"	"530 - Process Tracking"		"D01 - Mission Support Data"	"002 - Assistances"	"032 - Grant Receipt of Proposals"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Grants.gov (eGov)	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"				"D01 - Mission Support Data"	"002 - Assistances"	"030 - Grants Administration"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
eGrants Business Portal Project	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"344 - Web Content Management"			"D01 - Mission Support Data"	"002 - Assistances"							
eGov Grants Management LOB	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"							"030 - Grants Administration"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Grants Management System	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"	"108 - Customer Services"			"D01 - Mission Support Data"	"002 - Assistances"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
LHR-GMS	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"					"D01 - Mission Support Data"	"002 - Assistances"	"030 - Grant Administration"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
NOFA-S	Grants Management	Grants Management																
HUD eGrants	Grants Management	Grants Management		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"002 - Community and Regional Development"										High	High	High
Major Investment			General Government (10)	"805 - Central personnel management"	"255 - Employee Performance Management"													
HUD Integrated Human Resources and Training System Data Store	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"255 - Employee Performance Management"	"603 - Data Warehouse"	"601 - Data Exchange"	"129 - Reporting and Information"	"318 - Business Analytics"	"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"042 - Education / Training"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Human Resources Entry Processing Inquiry & Correction System	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"601 - Data Exchange"				"D04 - Resource Data"	"002 - Business Resources"	"044 - Federal Staff Acquisition"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Intern Tracker	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
PBRC Tracker	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
HR End-to-End Solution - Phase 1	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"106 - Workforce Planning"	"318 - Business Analytics"	"129 - Reporting and Information"	"603 - Data Warehouse"	"251 - Staffing and Recruiting"	"D04 - Resource Data"	"002 - Business Resources"							
GovBenefits	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"254 - Employee Benefits and Compensation"	"344 - Web Content Management"	"577 - Knowledge Distribution and Delivery"									High	High	High
Web Time and Attendance	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"613 - Time Reporting"	"254 - Employee Benefits and Compensation"	"344 - Web Content Management"			"D04 - Resource Data"	"002 - Business Resources"					High	High	High
HUD Integrated Human Resources and Training System	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"255 - Employee Performance Management"	"530 - Process Tracking"	"618 - Employee Development and Training"	"603 - Data Warehouse"		"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"042 - Education / Training"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Summer Hires Tracker	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"530 - Process Tracking"				"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
eGov Human Resources Management LOB	Human Resources Management	Human Resources Management		"805 - Central personnel management"	"254 - Employee Benefits and Compensation"							"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
														Credentialed	Center - USG			
			General Government (10)	"805 - Central personnel management"	"254 - Employee Benefits and Compensation"													
Personnel Information System	Human Resources Management	Human Resources Data Management Services		"805 - Central personnel management"	"254 - Employee Benefits and Compensation"	"601 - Data Exchange"	"666 - Classification"			"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Low
HUD Integrated Human Resources and Training System Data Store	Human Resources Management	Human Resources Data Management Services		"805 - Central personnel management"	"255 - Employee Performance Management"	"603 - Data Warehouse"	"601 - Data Exchange"	"129 - Reporting and Information"	"318 - Business Analytics"	"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"042 - Education / Training"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Electronic Official Personnel Folder	Human Resources Management	Human Resources Data Management Services		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"345 - Management of Government Records"	"603 - Data Warehouse"			"D04 - Resource Data"	"002 - Business Resources"					Moderate	High	Low
Performance Accountability and Communication System (PACS/EPACS)	Human Resources Management	Human Resources Data Management Services		"805 - Central personnel management"	"255 - Employee Performance Management"	"601 - Data Exchange"				"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Low
Visual Departmental Organization Charting System	Human Resources Management	Human Resources Data Management Services		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"318 - Business Analytics"	"601 - Data Exchange"			"D04 - Resource Data"	"002 - Business Resources"	"043 - Employee Records"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
			General Government (10)	"805 - Central personnel management"	"251 - Staffing and Recruiting"													
80 Day Tracker	Human Resources Management	Recruitment and Staffing		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"530 - Process Tracking"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"044 - Federal Staff Acquisition"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
Security Control and Tracking System	Human Resources Management	Recruitment and Staffing		"805 - Central personnel management"	"251 - Staffing and Recruiting"	"531 - Case Management"	"121 - Security Management"	"530 - Process Tracking"		"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"044 - Federal Staff Acquisition"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Major Investment			General Government (10)	"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"													
IT Modernization - Platform Standardization	Information Technology	Enterprise Services		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"139 - IT Infrastructure Maintenance"												
IT Modernization - Application Management	Information Technology	Enterprise Services		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"139 - IT Infrastructure Maintenance"												



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
IT Modernization - ITSM	Information Technology	Enterprise Services		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"139 - IT Infrastructure Maintenance"	"530 - Process Tracking"	"680 - Issue Tracking"										
Departmental Policy and E-Government Programs	Information Technology	Enterprise Services		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"103 - Enterprise Architecture"												
CIO Legacy Systems	Information Technology	Enterprise Services		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"	"538 - Program / Project Management"						"080 - Fault Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Major Investment			General Government (10)	"813 - Support delivery of federal services"	"314 - Assistive Technology Services"													
HUD TTY Network-Based System	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"314 - Assistive Technology Services"	"139 - IT Infrastructure Maintenance"						"222 - Data Integration and Exchange"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Departmental IT Infrastructure	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"	"314 - Assistive Technology Services"	"654 - Incident Response"	"341 - Web Infrastructure"	"601 - Data Exchange"									
HUDware II WinXP Desktop	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"							"080 - Fault Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
LAN Servers Patch Management	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"	"317 - Data Integrity and Privacy Management"	"315 - Threat and Vulnerability Management"	"316 - Continuous Monitoring"				"082 - Monitoring"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Mainframe (IBM)	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"							"220 - Data Backup and Recovery"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Mainframe (Unisys)	Information Technology	Infrastructure and System Monitoring Support		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"							"220 - Data Backup and Recovery"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
			General Government (10)	"810 - Cyber security services and key asset/ infrastructure protection"	"649 - Access Control"													
Web Access Security Sub-System	Information Technology	IT Security Services		"810 - Cyber security services and key asset/ infrastructure protection"	"649 - Access Control"					"D02 - Enterprise Support Data"	"003 - Protections"	"072 - Incident Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
IT Modernization - Unified Single Sign-On	Information Technology	IT Security Services		"810 - Cyber security services and key asset/ infrastructure protection"	"649 - Access Control"	"648 - Identification and Authentication"	"337 - Credential Issuance and Management"			"D02 - Enterprise Support Data"	"003 - Protections"							



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Integrated Pool Management System	Information Technology	IT Security Services		"810 - Cyber security services and key asset/ infrastructure protection"	"317 - Data Integrity and Privacy Management"	"139 - IT Infrastructure Maintenance"				"D02 - Enterprise Support Data"	"003 - Protections"	"340 - Authentication and Authorization"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
LAN Servers Anti-Virus Management	Information Technology	IT Security Services		"810 - Cyber security services and key asset/ infrastructure protection"	"317 - Data Integrity and Privacy Management"	"315 - Threat and Vulnerability Management"	"316 - Continuous Monitoring"	"139 - IT Infrastructure Maintenance"				"343 - Virus Protection"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Cybersecurity & Assessment Management Tool	Information Technology	IT Security Services		"810 - Cyber security services and key asset/ infrastructure protection"	"317 - Data Integrity and Privacy Management"	"139 - IT Infrastructure Maintenance"				"D02 - Enterprise Support Data"	"003 - Protections"	"340 - Authentication and Authorization"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Major Investment			General Government (10)	"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"													
HUDOIG Distributed Computing Environment	Information Technology	OIG Infrastructure		"813 - Support delivery of federal services"	"139 - IT Infrastructure Maintenance"	"319 - Regulatory Compliance"												
			General Government (10)	"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"													
HUD Application Release Tracking System	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"530 - Process Tracking"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"226 - Database Management System"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Inventory of Automated Systems	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"655 - Audit Trail Capture and Analysis"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"226 - Database Management System"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Quality Control Review System	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"344 - Web Content Management"	"326 - IT System Development / Integration Support"				"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
In-House Business Solutions (IBS)	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"354 - IT Strategy and Innovation"	"538 - Program / Project Management"											
Multifamily Housing Development Coordination System	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"354 - IT Strategy and Innovation"	"538 - Program / Project Management"											
System Engineering Support Group	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"354 - IT Strategy and Innovation"												
IV&V Services for Financial Systems	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"321 - Regulatory Enforcement"	"656 - Certification and Accreditation"											



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
PIH Development Coordination Group	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"354 - IT Strategy and Innovation"	"538 - Program / Project Management"											
Maintain PD&R Systems (KBM Group)	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"													
HUD Endeavor Environment	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"655 - Audit Trail Capture and Analysis"	"139 - IT Infrastructure Maintenance"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"242 - Software Configuration Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
TeamStudio/ClAO, CM-tool for LotusNotes	Information Technology	Solutions Engineering		"813 - Support delivery of federal services"	"326 - IT System Development / Integration Support"	"655 - Audit Trail Capture and Analysis"	"139 - IT Infrastructure Maintenance"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"242 - Software Configuration Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HUD Enterprise IT Project Portfolio Management	Information Technology	Solutions Engineering	"General Government - 10"	"813 - Support delivery of federal services"	"538 - Program / Project Management"													
			General Government (10)	"813 - Support delivery of federal services"	"538 - Program / Project Management"													
TI/IT Program Management Support, Management Controls Implementation, Transition	Information Technology	OCIO Program Budget		"813 - Support delivery of federal services"	"538 - Program / Project Management"	"354 - IT Strategy and Innovation"	"104 - Strategic Planning"											
IT Acquisition	Information Technology	OCIO Program Budget		"813 - Support delivery of federal services"	"327 - Enterprise Licenses and Software"													
IT Security / Information Assurance	Information Technology	OCIO Program Budget		"810 - Cyber security services and key asset/ infrastructure protection"	"337 - Credential Issuance and Management"													
Technology Management & Assessment	Information Technology	OCIO Program Budget		"802 - Executive direction and management"	"354 - IT Strategy and Innovation"													
			General Government (10)	"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"													
Albany Financial Operations Center System	Mortgage Insurance	Homeownership Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"116 - Debt Collection"	"530 - Process Tracking"		"D01 - Mission Support Data"	"002 - Assistances"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Distributive Shares and Refund Subsystem	Mortgage Insurance	Homeownership Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"319 - Regulatory Compliance"			"D01 - Mission Support Data"	"002 - Assistances"	"283 - Knowledge Capture"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
FHA Subsidiary Ledger	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"124 - Accounting"	"318 - Business Analytics"	"126 - Payments"	"127 - Collections and Receivables"	"D04 - Resource Data"	"002 - Business Resources"	"024 - General Ledger"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Home Equity Conversion Mortgages	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"116 - Debt Collection"	"530 - Process Tracking"		"D01 - Mission Support Data"	"002 - Assistances"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Reporting and Feedback System	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"318 - Business Analytics"	"530 - Process Tracking"		"D01 - Mission Support Data"	"002 - Assistances"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Single Family Insurance System	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"226 - Database Management System"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Single Family Insurance System-Claims Subsystem	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Single Family Premium Collection Subsystem - Periodic	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"127 - Collections and Receivables"	"124 - Accounting"			"D01 - Mission Support Data"	"002 - Assistances"	"021 - Accounts Receivable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	Moderate	Moderate
Single Family Premiums Collection Subsystem - Upfront	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"127 - Collections and Receivables"	"124 - Accounting"			"D01 - Mission Support Data"	"002 - Assistances"	"024 - General Ledger"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	Moderate	Moderate
Title I Insurance and Claims	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Unclaimed Funds System	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"				"D01 - Mission Support Data"	"002 - Assistances"	"211 - Statistical Analysis"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Debt Collection and Asset Management System - Generic Debt	Mortgage Insurance	Homeowners hip Finances		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"127 - Collections and Receivables"	"001 - Homeownershi p Promotion"			"D01 - Mission Support Data"	"002 - Assistances"	"021 - Accounts Receivable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	Moderate	Moderate
			Economic and Financial (03)	"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"													
Mark-To-Market	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"259 - Budget and Performance Integration"	"144 - Inventory Control"		"D04 - Resource Data"	"001 - Assets"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Title V System	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownershi p Promotion"	"530 - Process Tracking"	"129 - Reporting and Information"		"D04 - Resource Data"	"001 - Assets"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Integrated Budget Forecasting Model	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"101 - Budget Formulation"										



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Integrated Real Estate Management System	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"144 - Inventory Control"	"318 - Business Analytics"	"603 - Data Warehouse"	"D04 - Resource Data"	"001 - Assets"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Single Family Acquired Asset Management System	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"531 - Case Management"			"D04 - Resource Data"	"001 - Assets"	"313 - Case Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Asset Disposition and Management System Formerly Voyager Business Sys Provider	Mortgage Insurance	Housing Asset Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"531 - Case Management"			"D04 - Resource Data"	"001 - Assets"	"313 - Case Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Major Investment			Economic and Financial (03)	"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"													
Single Family Neighborhood Watch	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"319 - Regulatory Compliance"	"344 - Web Content Management"	"129 - Reporting and Information"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"201 - Balanced Scorecard"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Active Partners Performance System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"108 - Customer Services"	"038 - Housing Assistance"	"129 - Reporting and Information"	"318 - Business Analytics"	"D01 - Mission Support Data"	"001 - Mission Support Activities"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Housing Counseling System	Mortgage Insurance	Mortgage Insurance Risk Management	"General Government - 10"	"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"259 - Budget and Performance Integration"	"362 - Federal Financial Assistance"	"530 - Process Tracking"	"D01 - Mission Support Data"	"002 - Assistances"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Institution Master File	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"108 - Customer Services"	"603 - Data Warehouse"		"D04 - Resource Data"	"007 - Parties"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Multifamily Delinquency and Default Reporting System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"319 - Regulatory Compliance"			"D01 - Mission Support Data"	"002 - Assistances"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Single Family Default Monitoring Subsystem	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"530 - Process Tracking"	"318 - Business Analytics"		"D01 - Mission Support Data"	"002 - Assistances"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Approval & Recertification Tracking System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"108 - Customer Services"	"001 - Homeownership Promotion"	"318 - Business Analytics"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Development Application Processing System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"318 - Process Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Lender Assessment Sub-System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"319 - Regulatory Compliance"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"200 - Ad hoc Reporting"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Computerized Homes Underwriting	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"266 - Web Content"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Management System												Management						
Comprehensive Servicing and Monitoring System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"320 - Credit and Insurance"			"D01 - Mission Support Data"	"002 - Assistances"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
FHA Connection	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"344 - Web Content Management"	"318 - Business Analytics"	"108 - Customer Services"	"D01 - Mission Support Data"	"002 - Assistances"	"400 - Portal"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Home Equity Reverse Mortgage Information Technology	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Hospital Mortgage Insurance Management Information System	Mortgage Insurance	Mortgage Insurance Risk Management		"808 - Other General Government"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"319 - Regulatory Compliance"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"203 - Decision Support"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	Moderate
Quality Assurance Document Library System	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"661 - Document Library"	"530 - Process Tracking"			"D04 - Resource Data"	"004 - Contents"	"261 - Document Library"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
Lender Electronic Assessment Portal	Mortgage Insurance	Mortgage Insurance Risk Management		"806 - General purpose fiscal assistance"	"320 - Credit and Insurance"	"001 - Homeownership Promotion"	"108 - Customer Services"			"D04 - Resource Data"	"002 - Business Resources"	"011 - Issue Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
FHA Transformation	Mortgage Insurance	Mortgage Insurance Risk Management																
Access To Credit	Mortgage Insurance	Mortgage Insurance Risk Management																
			General Government (10)	"803 - Central fiscal operations"	"101 - Budget Formulation"													
EZBudget Formulation System	Planning and Budgeting	Departmental Planning and Budgeting		"803 - Central fiscal operations"	"101 - Budget Formulation"	"259 - Budget and Performance Integration"				"D04 - Resource Data"	"002 - Business Resources"	"022 - Budget Planning and Execution"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Enterprise Business Information Transformation System	Planning and Budgeting	Departmental Planning and Budgeting		"802 - Executive direction and management"	"103 - Enterprise Architecture"	"576 - Knowledge Capture"	"577 - Knowledge Distribution and Delivery"	"530 - Process Tracking"		"D04 - Resource Data"	"002 - Business Resources"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
Electronic Capital Planning Investment Control	Planning and Budgeting	Departmental Planning and Budgeting		"803 - Central fiscal operations"	"101 - Budget Formulation"	"576 - Knowledge Capture"	"546 - Portfolio Management"	"259 - Budget and Performance Integration"		"D04 - Resource Data"	"002 - Business Resources"	"022 - Budget Planning and Execution"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
Total Est & Allocation Mechanism - Resource Est & Allocation Process (TEAM-REAP)	Planning and Budgeting	Departmental Planning and Budgeting		"803 - Central fiscal operations"	"101 - Budget Formulation"	"105 - Budget Execution"	"259 - Budget and Performance Integration"	"576 - Knowledge Capture"	"106 - Workforce Planning"	"D04 - Resource Data"	"002 - Business Resources"	"023 - Financial Audit"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
eGov Budget Formulation and Execution LOB	Planning and Budgeting	Departmental Planning and Budgeting		"803 - Central fiscal operations"	"101 - Budget Formulation"							"022 - Budget Planning and Execution"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Performance Management LOB	Planning and Budgeting	Departmental Planning and Budgeting		"802 - Executive direction and management"	"547 - Performance Management"							"023 - Financial Audit"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
			General Government (10)	"812 - Knowledge management"	"530 - Process Tracking"													
Deliverable Management Module	Process Automation Services	Compliance Tracking		"812 - Knowledge management"	"530 - Process Tracking"					"D04 - Resource Data"	"002 - Business Resources"	"262 - Document Management System"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Moderate
Management Action Control System	Process Automation Services	Compliance Tracking		"812 - Knowledge management"	"530 - Process Tracking"					"D04 - Resource Data"	"002 - Business Resources"	"312 - Business Rule Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
			General Government (10)	"814 - External communications"	"533 - Correspondence Management"													
Congressional Grant Notification Database	Process Automation Services	Correspondence		"814 - External communications"	"533 - Correspondence Management"	"326 - IT System Development / Integration Support"	"362 - Federal Financial Assistance"	"517 - External Partner Relationship Management"		"D02 - Enterprise Support Data"	"001 - Communications"							
Public Inquiry Communication Subsystem	Process Automation Services	Correspondence		"814 - External communications"	"533 - Correspondence Management"	"530 - Process Tracking"				"D02 - Enterprise Support Data"	"001 - Communications"	"318 - Process Tracking"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Routing and Approval of Directives and Regulations	Process Automation Services	Correspondence		"814 - External communications"	"533 - Correspondence Management"	"530 - Process Tracking"	"577 - Knowledge Distribution and Delivery"			"D02 - Enterprise Support Data"	"002 - Enterprise Support Activities"	"262 - Document Management System"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
			General Government (10)	"808 - Other General Government"	"322 - Public Communications Infrastructure"													
HUD Client Information and Policy System	Public Affairs	Public Affairs		"808 - Other General Government"	"322 - Public Communications Infrastructure"	"661 - Document Library"	"577 - Knowledge Distribution and Delivery"	"681 - Forms Management"		"D04 - Resource Data"	"002 - Business Resources"	"400 - Portal"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
HUD Communication Manager	Public Affairs	Public Affairs		"808 - Other General Government"	"517 - External Partner Relationship Management"	"533 - Correspondence Management"				"D04 - Resource Data"	"002 - Business Resources"	"222 - Data Integration and Exchange"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
HUD.gov	Public Affairs	Public Affairs		"808 - Other General Government"	"322 - Public Communications Infrastructure"	"344 - Web Content Management"	"108 - Customer Services"			"D04 - Resource Data"	"002 - Business Resources"							
HUDweb (HUD@work)	Public Affairs	Public Affairs		"808 - Other General Government"	"322 - Public Communications Infrastructure"	"344 - Web Content Management"	"108 - Customer Services"			"D04 - Resource Data"	"002 - Business Resources"							
Social Media Intranet Platform	Public Affairs	Public Affairs		"808 - Other General Government"	"322 - Public Communications Infrastructure"	"344 - Web Content Management"				"D04 - Resource Data"	"002 - Business Resources"	"364 - Social Software"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Low	Low	Low
			General Government (10)	"808 - Other General Government"	"321 - Regulatory Enforcement"													
E-Discovery Management System	Regulatory, Legislative and Enforcement	Legal		"808 - Other General Government"	"321 - Regulatory Enforcement"	"319 - Regulatory Compliance"	"661 - Document Library"			"D04 - Resource Data"	"004 - Contents"	"261 - Document Library"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
eRulemaking (eGov)	Regulatory, Legislative and Enforcement	Legal		"808 - Other General Government"	"321 - Regulatory Enforcement"	"113 - Public Comment Tracking"	"108 - Customer Services"					"312 - Business Rule Management"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Office of General Counsel Enterprise Tracking System Implementation	Regulatory, Legislative and Enforcement	Legal		"808 - Other General Government"	"330 - Legislative Relations"	"531 - Case Management"	"538 - Program / Project Management"	"530 - Process Tracking"		"D01 - Mission Support Data"	"003 - Cases"					Moderate	Moderate	Low
Office of Program Enforcement Tracking System	Regulatory, Legislative and Enforcement	Legal		"808 - Other General Government"	"330 - Legislative Relations"	"531 - Case Management"	"538 - Program / Project Management"	"530 - Process Tracking"		"D01 - Mission Support Data"	"003 - Cases"	"262 - Document Management System"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
OGC LawManager	Regulatory, Legislative and Enforcement	Legal																
FDOOnline	Regulatory, Legislative and Enforcement	Legal																
			General Government (10)	"808 - Other General Government"	"321 - Regulatory Enforcement"													
Enforcement Center Information System	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"531 - Case Management"	"661 - Document Library"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"260 - Document Imaging and OCR"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Departmental Enforcement Center Management System	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"531 - Case Management"	"530 - Process Tracking"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"202 - Business Intelligence"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HUD Integrated Performance Reporting System	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"547 - Performance Management"				"D03 - Guidance Data"	"004 - Measures"	"202 - Business Intelligence"	"501 - Application "	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Labor Relations 2000	Regulatory, Legislative	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"319 - Regulatory Compliance"	"065 - Labor Rights Management"	"228 - Labor Relations"	"129 - Reporting"	"D01 - Mission"	"001 - Mission Support Activities"	"201 - Balanced Scorecard"	"501 - Application "	"104 - Private -"	"101 - Data"	Moderate	Moderate	Low



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
	and Enforcement								Information"	Support Data"				Credentialed"	Center - USG"			
Census Demographics Database	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"590 - Mapping / Geospatial"	"592 - Data Mining"	"318 - Business Analytics"	"661 - Document Library"	"D03 - Guidance Data"	"004 - Measures"	"281 - Data Mining"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Low	Low
Fair Housing Information Technology Support Formaly TEAPOTS	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"531 - Case Management"	"530 - Process Tracking"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"313 - Case Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Lead-Based Paint Compliance Advisor	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"120 - Help Desk Services"	"108 - Customer Services"			"D01 - Mission Support Data"	"001 - Mission Support Activities"	"210 - Standardized / Canned"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
HUD Enforcement Management System (HEMS)	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"					"D01 - Mission Support Data"	"001 - Mission Support Activities"							
Lead Enforcement Tracking System	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"538 - Program / Project Management"				"D01 - Mission Support Data"	"001 - Mission Support Activities"							
Equal Employment Opportunity Management Information System	Regulatory, Legislative and Enforcement	Regulatory Enforcement		"808 - Other General Government"	"321 - Regulatory Enforcement"	"531 - Case Management"	"530 - Process Tracking"	"129 - Reporting and Information"		"D01 - Mission Support Data"	"001 - Mission Support Activities"	"266 - Web Content Management"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	Moderate	Low
Davis Bacon Support Payroll Wage Rate Analysis Capability	Regulatory, Legislative and Enforcement	Regulatory Enforcement																
RLE Segment SharePoint Support	Regulatory, Legislative and Enforcement	Regulatory Enforcement																
HUD Enforcement Management System	Regulatory, Legislative and Enforcement	Regulatory Enforcement																
			General Government (10)	"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"													
Neighborhood Networks	Subsidies Management	Housing Assistance		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"139 - IT Infrastructure Maintenance"			"D01 - Mission Support Data"	"002 - Assistances"	"060 - Facilities"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Tenant Rental Assistance Certification System	Subsidies Management	Housing Assistance		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"126 - Payments"			"D01 - Mission Support Data"	"002 - Assistances"	"020 - Accounts Payable"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Automated Amendment and Renewal System	Subsidies Management	Housing Assistance		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"530 - Process Tracking"			"D01 - Mission Support Data"	"002 - Assistances"	"202 - Business Intelligence"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate



IT Asset Item	HUD Segment	Investment	Federal Government BRM Mission Sector	Primary BRM Budget Function	Primary BRM Service Alignment	Secondary BRM Service Alignment 1	Secondary BRM Service Alignment 2	Secondary BRM Service Alignment 3	Secondary BRM Service Alignment 4	DRM Domain	DRM Subject	ARM Interface Category	IRM Host Platform	IRM Host Network	IRM Host Facility	System Sensitivity Level - Integrity	System Sensitivity Level - Confidentiality	System Sensitivity Level - Availability
PIH Inventory Management System	Subsidies Management	Housing Assistance		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"144 - Inventory Control"			"D01 - Mission Support Data"	"002 - Assistances"		"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	Moderate	High	Moderate
Energy and Performance Information Center	Subsidies Management	Housing Assistance		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"144 - Inventory Control"			"D01 - Mission Support Data"	"002 - Assistances"							
Major Investment			General Government (10)	"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"													
Voucher Management System	Subsidies Management	Next Generation Management System		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"	"603 - Data Warehouse"	"126 - Payments"	"318 - Business Analytics"	"D01 - Mission Support Data"	"002 - Assistances"	"225 - Data Warehouse & Data Mart"	"501 - Application"	"104 - Private - Credentialed"	"101 - Data Center - USG"	High	High	High
Next Generation Management System	Subsidies Management	Next Generation Management System		"806 - General purpose fiscal assistance"	"362 - Federal Financial Assistance"	"038 - Housing Assistance"												